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VIDEO TOASTER:

- > FIRST TOASTER EXPO!
- > BENCH TESTS

TURBO OSAKA

DIRECTOR II

A-MAX II



#36

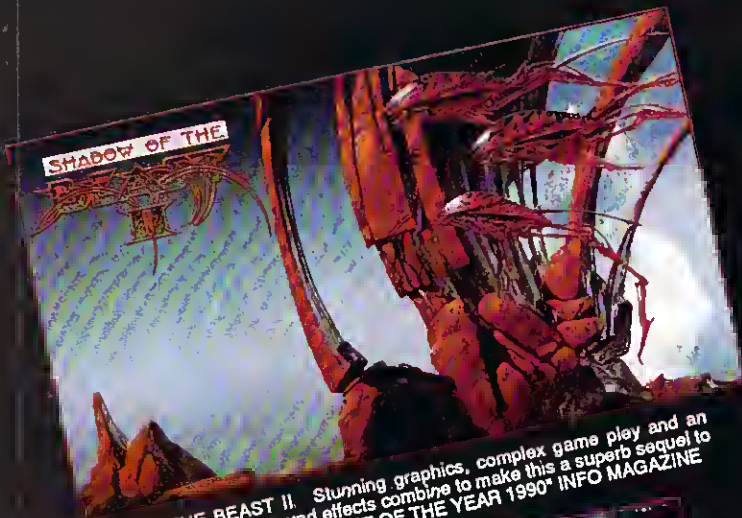
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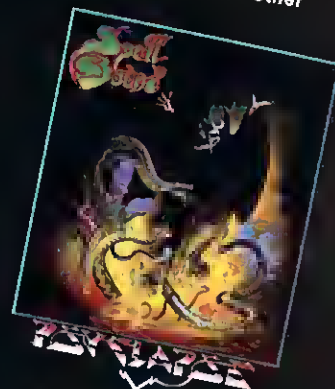
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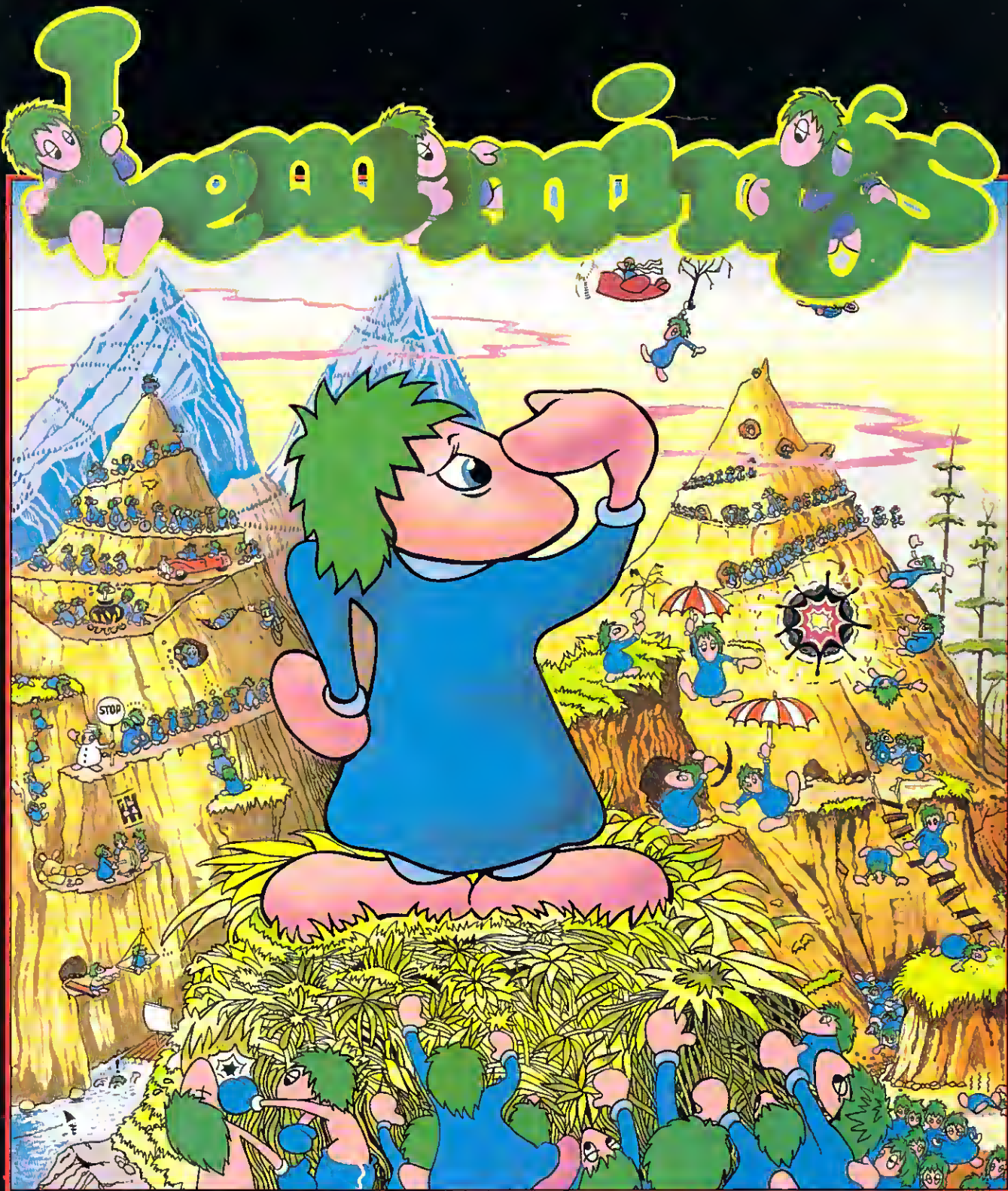


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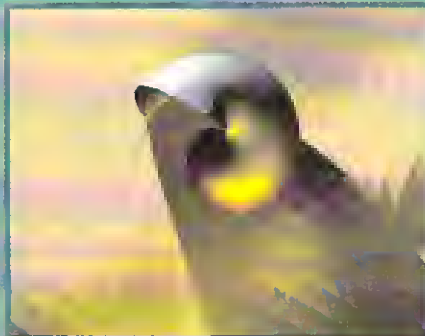
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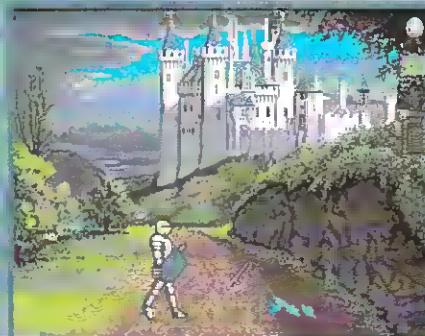
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the AMIGA PRO

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Cover background created with *Video Toaster's Lightwave 3D*. *.info* strives to be a clear voice for Amiga users and a showcase for the talented people and exceptional products of the Amiga computer community. Everything in this magazine (except for some of the ads) is digitally created, edited, and color separated as complete pages on Amigas running off-the-shelf software and peripherals, and output directly to film.

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.info Monitor

Mork R. Brown
Managing Editor

Benn Dunnington
Publisher

TWO MILLION AMIGAS

Commodore recently announced the sale of its two millionth Amiga. That's a lot of computers. If you figure Amiga owners have spent a conservative \$1000 apiece for their machines, Commodore and its dealers have raked in two billion dollars selling Amigas (and a lot more selling peripherals, add-ons, and software). Two million Amigas represents one Amiga for every 2500 people in the world. If you laid that many Amigas end to end, they would stretch for over 500 miles. Stacked up, they would form a solid 10-story tall pyramid with a base area larger than a football field. They would weigh about 10,000 tons, or as much as forty fully loaded B-52 bombers. You'd need over 200 megawatts of electrical power to run them all, plus power for their monitors and associated peripherals. Most generating stations wouldn't be able to handle the load. That many Amigas contain 2,000 gigabytes of RAM, and their total computing power is equivalent to approximately 8000 Cray-2 supercomputers. If you bundled all their printer cables into a single cable, it would be over 33 feet thick (and still only 6 feet long!) If you stacked all the monitors, it would form a display about 1400 feet wide and 940 feet high, which is bigger than 40 football fields. If you... well, you get the idea.

In the U.S., our share of the total is 1/4 of all Amigas sold, or about 500,000. That's an average of 10,000 for every state in the union. It means one Amiga for every 500 people, or an Amiga in one of about every 200 households. Can that be? Can one in every 200 Americans really have an Amiga at home?

Of course, you have to temper the figures with a bit of reality. Many of those Amigas went to schools, business, and studios, not homes. And lots of Amiga 1000 owners traded in their computers when they upgraded to A2000s. Many businesses and institutions - like *.info*, for example - have more than one

Amiga. Lots of die-hard Amiga owners even have two Amigas at home. So truth is, you might have to visit a lot more than 200 houses to find an Amiga. Still, the raw numbers are impressive.

They are especially impressive when you consider that most of those Amigas have been sold on the basis of reputation and word of mouth. The best Amiga salesman is an Amiga owner. That means *you!* Without your efforts, the Amiga would certainly be an orphan computer by now. And, though Commodore hasn't taken the time to say thanks, let us say it for them: Thank You!

That Amiga ads are rarer than hen's teeth (as we say here in Iowa) isn't entirely Commodore's fault. They are stuck in a bit of a chicken-and-egg situation (as we also say here in Iowa... we're big on poultry analogies). Without big sales, Commodore can't afford big ad campaigns. Without big ad campaigns, they don't garner big sales. You see lots more TV commercials for Macintoshes and PS/2's than you do for Amigas, but don't forget that Apple's sales are almost six times bigger than Commodore's, and Big Blue's are seventy times greater. That Commodore can hold its own - and even make some inroads - against such behemoths is the real miracle.

With recent growth in the multimedia and desktop video markets, Amiga sales are sure to increase at an even faster rate over the next few months. But Commodore will still need your help to do it. If you want the Amiga to prosper, it's up to you. Tell your friends. Tell your cable TV stations. Tell your schools. Get involved in users' groups. Offer to demo your Amiga for anybody and everybody. Put together a good show. And be ready to direct potential buyers to a reputable place where they can really buy an Amiga when they're ready. Five years from now, when the Amiga is still around and there's plenty of new hardware and new software and new models of Amigas are still being introduced, you'll be glad you made the effort.

- Mark & Benn

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.info (ISSN 08975668) is published monthly except bi-monthly in December-January by .info Publications, 705 Highway 1 West, Iowa City, IA 52246. US subscription rate is \$26.00, one year; \$47.50, two years; \$65.00, three years. Canada/Mexico rates in US funds are \$34.00, one year; \$63.50, two years; \$89.00, three years. Foreign surface rate is \$50.00 (US funds), one year. Second-class postage paid at Iowa City, IA and at additional mailing office. POSTMASTER: Send address changes to .info, 705 Highway One, Iowa City, IA 52246.

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You guys thought you were fooling us, but I can tell. You are really those two movie reviewers, Siskel and Ebert, right? You clever, incognito rascals! I give .info a definite "thumbs up" but I do have a comment about Peggy Herrington's column *Music & Sound* in #34. I find it remarkable that she didn't mention the best internal Amiga instruments around; the RFF (Riley File Format) instruments.

-- John W. Covington III, Savannah, GA

Drat! Our cover is blown. We were sure nobody would see through the fake moustache and beard on Benn (aka Gene). Peggy agrees that the best internal Amiga instruments are the Sonix RFF instruments but she didn't talk about them in her column because they're not compatible with AmigaVision or any other sound program which uses the standard IFF format. See you at the movies! Er, we mean, in the pages of .info!

- Roger & Gene

I have found that the majority of people who own Amigas purchased them to play games, and that the most software sold for the Amiga is games. No matter how good the software is and no matter how adept the Amiga is at video applications, there will never be a mass market of potential buyers for the Amiga as a video machine. And no average Joe is going to

buy a \$1500+ computer just to add spiffy credits or graphics to their home videos. Where's your evidence that there is going to be a mass market for video applications on the Amiga? Heck, where's your evidence that there is a huge market for any Amiga application other than games? Please tell me why .info shouldn't be 80% games and 20% business, video, graphics, etc.

- Timothy J. O'Hare, CompuServe

Not that we don't love gaming, too, but put down the joystick, wake up and look around, dude! There already is a massive market for Amiga video applications, multimedia, music, graphics, and animation. It is projected that multimedia alone will be a \$17 million industry by 1994; a local video dealer tells us he lost over \$50,000 worth of high-end video business to the Video Toaster in the first two weeks it was available; and a heavily Mac-oriented music software company we know of was completely and pleasantly surprised by the initial sales of their first Amiga MIDI offerings. If games were all that the Amiga could do and the only reason anyone ever bought one, Nintendo would have killed it a long time ago. To paraphrase: Who wants to pay \$1500+ for a computer just to play games?

- Mark & Benn

I recommend that .info get rid of the game reviews and devote those pages to video and audio production information. I am a student at Ohio University and people around here are going Amiga crazy. OU is home to the nation's third largest telecommunications school and has recently purchased Amigas for their cable TV stations. I am involved in training students to use them. I have a lot of games, but I think at a professional level or even a university level, the games just don't appeal to anyone after they have worked with *Deluxe Paint III* or *Audio Master III*.

- John M. Lynn, GENie

"All work and no play," John? Just goes to show you can't please all the people all the time. But we still try!

- Mark & Benn

I just got the new issue in the mail today and was very happy to find that the supplement was actually bound onto the outside of the magazine. Aside from the obvious environmental evils of plastic polybags, I have often misplaced or lost the wrap-ups because they were not part of the actual issue. Thanks for making that change and keep up the good work!

- Christopher A. Wichura, CompuServe

Woodsy the Owl had a long, earnest chat with Benn, and he agreed that non-biodegradable, here-'til-the-end-of-time polybags were no longer in vogue for the politically correct and environmentally conscious, which we, of course, try to be. So we have bowed to popular pressure and have stopped using them. We're a soft touch for fuzzy little forest creatures, especially those whose lawyers are threatening EPA action.

- Mark & Benn

I think it's a shame that Amigas must be marketed to business environments in order to be commercially successful. One of the things that appealed to me about the Amiga in the first place was that it was such an exciting, artistic, underground machine. Don't get me wrong, I realize that a greater number of Amigas in the business place mean better support and more recognition, but I'd rather see the Amiga flop than see all the music and video software dry up in favor of oh-so-thrilling things as *Lotus 1-2-3*.

- Thymothie Hoelscher,
Upper Marlboro, MD

*It'll be a cold day in Hades before the Amiga goes corporate or even needs to. Video, graphics, sound, multimedia, animation - these are the *raison d'être* for the Amiga and will never be abandoned in favor of spreadsheets and other boring old PC stuff. This raises an interesting possibility, however. With enough choices in the Amiga market of some of that boring old PC stuff - who would need or want a boring old PC?*

- Mark & Benn



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The First National Video Toaster Show

On the last day of November, the Hyatt Regency Hotel in Minneapolis was the scene of two historic events: the first national **Video Toaster Show**, and the public appearance of Toaster Inventor **Tim Jennison** and Toaster Boaster **Paul Montgomery** in tuxedos.

Officially presented by **NewTek**, **Commodore**, and **Alpha Video**, the Toaster Show featured continuous free seminars, hands-on Toaster workstations, and exhibits by such video giants as **JVC**, **Panasonic**, **Hitachi**, **NEC**, and **Sony**, as well as third-party developers such as **RGB** and **Future Video**. Since the Toaster is so new, the video companies were showing existing equipment and products suggested for use with Toastered Amigas. While this was very helpful for solving some immediate needs, the 3rd party fireworks really won't begin until they've had a chance to design the next round of products: with the Toaster specifically in mind.

Despite very little advance publicity, the one-day show attracted over **1100 attendees** (mostly video professionals, resellers, and educators).

Alpha Video, a major Amiga and video dealer in the Twin Cities area (and organizers of the show), proclaimed the show a great success (they reportedly sold some 20 full-blown Toaster systems and have another 20 in the works), and say that the corporate representatives from the video companies were very enthusiastic about the response to their products as well.

The presence of major video manufacturers at this event confirmed our belief that the Toaster and other professional Amiga video products are making a major impression on traditionally non-Amiga companies. That Commodore sent top management and some 20 dealers and distributors suggests the importance which Commodore is placing on the anticipated Amiga video market in general, and the Toaster in particular.



Commodore V.P. of Sales, Ron Stanczak (left) and Commodore President, Harry Copperman (right) surveying the impressive turnout at the first national Video Toaster Show. A strong response in the video market could mean an often elusive Commodore benefit for both executives: job security.

LOWEST \$ EDITING SYSTEM?



.info is currently seeking out and attempting to identify the lowest-cost production solutions for Toaster editing and animating (both of which can involve some very costly upgrades with the current state of the art).

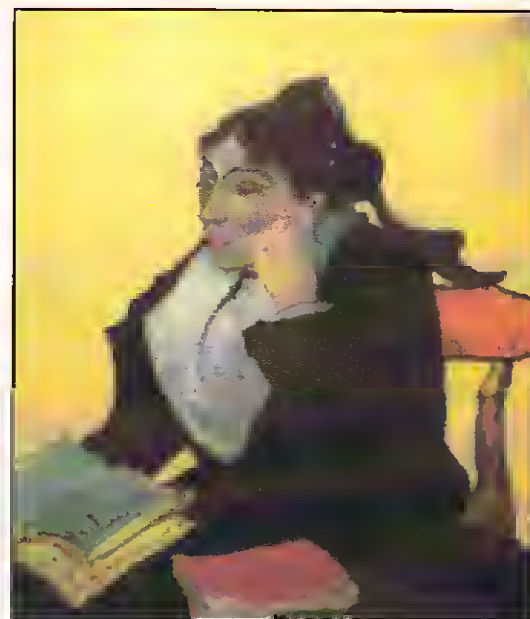
We think we have found the lowest cost combination currently available for gathering and editing video. The suggested system would be comprised of a Toaster equipped with one Sony CCD-V5000 HI-8 camcorder (this is timebase corrected and goes for about \$2000 street price- see *.info* #35, pg. 32), a Panasonic AG-1960 (an SVHS syncable deck which can be had for as low as \$1300), and the FutureVideo EC 1000 Pro/Plus Edit Controller (\$695 shown above) which will talk to both devices and give you 9 event editing with a claimed ± 2 frame accuracy (another \$595 gets you ± 1 frame with SMPTE encoding, and \$295 gives you 999 event programming). We are in the process of setting up a review of such a system, and will report our findings here.

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NEW PRODUCTS



HAM images of fine art from *The Connoisseur* by Lascelles Productions.

ABOVE: Battle of San Romano, 1445, Uccello (*The Quattrocento* set)

AT RIGHT: Arlessiene, 1888, Vincent VanGogh (*The Impressionists* set)

ART FOR AMIGA'S SAKE

We don't often talk much about new products from other parts of the globe, but this collection of art disks from New Zealand is so outstanding we had to give you all the details.

The Connoisseur is a course in art history that uses the Amiga the way it was meant to be used, with images, text, and music built into an entertaining, edifying, and absolutely beautiful multimedia presentation. It's divided into sets of disks covering the various periods of Western art, with each set sold separately at remarkably low prices. Beginning with *Classical* (Greek & Roman, 6 disks, \$39.20), it moves to the *Early Renaissance* (5 disks, \$39.20), *Quattrocento* (3 disks, \$28.00) *High Renaissance* (5 disks, \$39.20), *Venetian* (3 disks, \$28.00), and the *Impressionists* (8 disks, \$47.60). The whole works is available for \$196.00. As a bonus, there are also two disks of digitized period music that will play as you view the pictures and browse through the commentary.

The images themselves are HAM and hi-res, and the amount of labor involved in getting them onto disk must have been herculean. A great deal of care has been taken to make the paintings (there are a few sculptures and a building or two, but most of the images are paintings) as crisp and clear as possible, and proportioned correctly. Accompanying each image is succinctly written, intelligent commentary that provides interesting and informative details on what you're seeing. It

is, of course, no substitute for a good art history text, but adequate to give the broad outline and the most painless way to learn about great art we've ever seen.

Navigating through the paintings is a simple matter of point-and-click. On the left side of the control screen is a box containing the names of the paintings and there's a slightly larger box on the right with the commentary. There are icons for turning on music, searching for a particular painting, and moving the control panel up and down to get it out of the way. Loading from the floppies is relatively quick, but installing everything on a hard drive would be better and there are ReadMe files containing the necessary assignment information.

The most obvious target for *The Connoisseur* is schools, but since the images are standard IFF files, they would also be very useful for desktop publishing, clipart, video presentations, and the like. Since the package is done by period, we will certainly see more sets of disks in the future. If you have any interest in art, this is a great way to bring it to your Amiga screen. For more information, contact *Lascelles Productions*, PO Box 959, Hastings, New Zealand. FAX (INT) 06-876-8888.

CD AT LAST

The first CD-ROM drive we've seen is available from Xetec. There are two models, one external (CDX 650e) and one internal (CDX

650i) and both are SCSI devices, meaning that they work just like a hard drive except that you can't write to them. Just so you'll have something to do as soon as you plug the drive in, Xetec is including *Fish & More Vol. 1*, which contains the Fred Fish PD library up to disk #360. That should give you some indication of just how much data 650 megabytes is - the CD-ROM is only about half full. There are two more features that have to be mentioned. First, both units can also play standard audio CDs, so if you've been holding off buying a CD player, now you can have the best of both worlds. Second, the drives use the standard ISO 9660/High Sierra format, which means they're compatible with Commodore's CDTV data format. Price for the internal model is \$599, with the external going for \$699. 2804 Arnold Rd., Salina, KS 67401. 913-827-0685.

MORE GRAPHICS

Specifically designed for video work, **TV Graphics 2** provides overscan interface screens to use as backdrops for your own graphics. This collection includes wood, marble in several colors, religious symbols, granite, and even carpet (gee - I hope it's not like that ugly stuff my mom has in her basement). \$49.95 from *Slide City*, 6474 Hwy. 11, DeLeon Springs, FL 32130. 904-985-1103.

AMIGA[®]-COMM

INFOCOMM International[™] presents its first Amiga Special Event

**February 15-16, 1991
Orange County Convention Center
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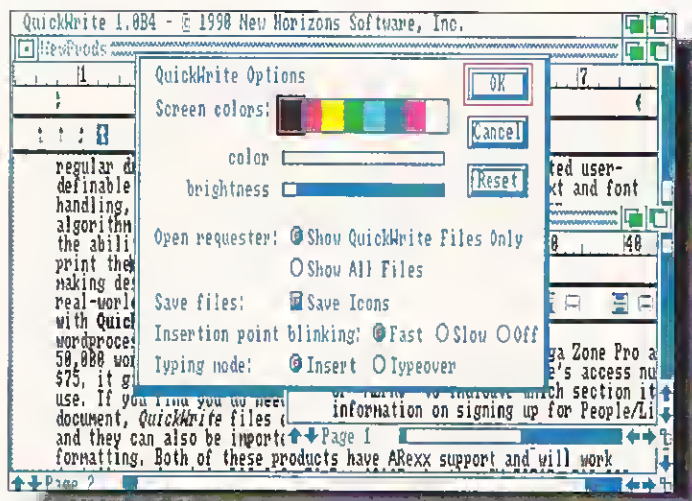
Show dates: February 15-16, 1991
Show hours: 10:00 a.m. - 5:00 p.m.



NEW PRODUCTS



The options window from New Horizons Software's latest wordprocessor *QuickWrite*.



MATH WHIZ

There is not much in the Amiga library in the way of sophisticated, high quality mathematical software. That gap has been filled to some degree by **Maple**, a mathematical evaluation program so sophisticated even Mark doesn't understand most of it. The version we've seen installs its own library and then operates via a command line, though publisher *Waterloo* Maple is working on a new Amigatized user interface scheduled to be finished in the first quarter of '91. The list of functions reads like a twenty-year math course; not only are there all the familiar mathematical operations, but there are also things with such exotic names as Bessel functions, b-splines, convergents, differential equations, dilogarithm integral, discriminant, Galois fields, Laplace and inverse Laplace transforms, infinity norm (is there such a thing as infinity abnorm?), polynomial interpolation, reciprocal polynomials, Fibonacci numbers (hurray! one I've heard of), float to rational approximation, summations to hypergeometrics, wedge product, Gergonne points, Euler circles, excircles (a deceased circle?!), univariate polynomials, Hessian matrices, Hermite normal form, scalar multiplication (I think there's a spray to cure that), Sylvester matrices, and on and on through hundreds more. What it all comes down to is that *Maple* is a serious, widely-recognized mathematical wonderland. Versions are available on every platform from 386 PCs to VAX to Crays. Published by Waterloo Maple Software, this powerhouse retails for \$395 US. 160 Columbia Street West, Waterloo, ON Canada N2L 3L3. 519-747-2373.

TOOLBOX

We have been using *Quarterback* around here for ages to back up our hard drives, and now *Central Coast Software* has released **Quarterback Tools** to make life with diskfiles a little less nerve-wracking. Its first function is to reposition files in optimum position on a disk, be it hard or floppy; if files aren't fragmented all over a disk, they load a lot faster. It will also recover deleted files, unformat disks, fix corrupt directories and files, and even mark bad areas as unavailable for use. The most impressive, and probably most needed, ability is to cure validation and key checksum problems (if only I'd had this before I reformatted my hard drive when it refused to validate and lost all those files!). *Quarterback Tools* has an ARexx port, works with any AmigaDOS file system and volumes of any size. You get all this lifesaving magic for \$89.95. 424 Vista Ave., Golden, CO 80401. 303-526-1030.

NEW NEW HORIZONS

New Horizons Software has two new desktop publishing and illustration tools coming our way. **Graphic Designer** is a structured drawing package for people who don't need a highly complex collection of exotic drawing tools that only an engineer could find any use for. It's designed to be fast, easy to use, and productive. Besides the regular drawing tools like lines and circles, it has unlimited user-definable multi-color patterns, multiple layers, flexible text and font handling, and the ability to smooth out curves using a Bezier algorithm. The printing

options include reduction and enlargement with the ability to automatically divide large drawings into pages and print them in sequence. Price is \$125. In keeping with their aim of making desktop publishing more accessible and software more useful for real-world, everyday applications, New Horizons is also coming out with **QuickWrite**, a sort of junior version of *ProWrite*, their graphic wordprocessor. It uses a very fast WYSIWYG display, comes with a 50,000 word spellchecker, macro and mail-merge support. At a cost of \$75, it gives most people all the wordprocessor they need for everyday use. If you find you do need to do more elaborate formatting in your document, *QuickWrite* files can be directly used in *Professional Page*, and they can also be imported into *ProWrite* without losing any of the formatting. Both of these products have ARexx support and will work just fine under AmigaDOS 2.0. PO Box 43167, Austin, TX 78745. 512-328-6650.

POWERFUL STUFF

Micro R & D has added another model to their line of power supplies. The **Big-foot 150** (we can only hope it doesn't leave large footprints and long red hairs on your computer desk). It can provide power for an Amiga 500 and up to five additional devices plugged into the A500's side expansion slot, either externally or internally. Price is \$129. 137 N. 7th, Loup City, NE 68853. 308-745-1243.

CABLE SOURCE

Finding the right cable to hook something up to your Amiga can be an aggravating experience. You know what we mean: you suddenly find that one end of your printer cable is the wrong gender, or that monitor you got on sale at the Crazy Elmo's Weird Monitor Store needs a cable with all the pins upside down and sideways. One of the best sources for peculiar, and even normal, cables is *Redmond Cable*. The latest list we've seen from them lists cables for laser printers, serial-to-parallel (and vice versa) converters, video switch boxes, confusion-ending color-coded cables (blue for parallel, green for modem, purple for laser printers, red for null modem). They can also make custom cables and connectors for you - in fact, Redmond is where we get .info's cables made. They have a very fast turn-around time and reasonable prices. 17371-A1 NE 67th Ct., Redmond, WA 98052. 206-882-2009.

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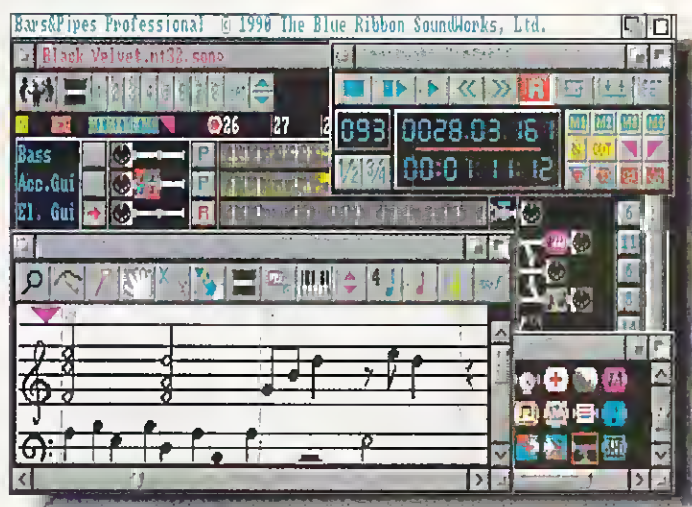
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Circle #108 on the Reader Service Card

NEW PRODUCTS



The new
*Bars & Pipes
Professional*
from
Blue Ribbon
Soundworks.



B & P PRO

The recently renamed *Blue Ribbon SoundWorks* has released an upscaled, completely new version of their highly successful MIDI sequencer, *Bars & Pipes Professional* is just that. The most notable [grin] feature is integrated standard music notation, which can be edited directly on the display and then printed. There's also an editor for the event list, which, in addition to the usual cut and paste type of functions, also supports *Bars & Pipes Tools*. A new *MixMaestro* has been added that gives the musician the ability to mix MIDI tracks graphically, with control over volume, panning, etc. Probably the most immediately apparent change from the previous version is the new window and icon system. All of the main functions (those for editing, transport, tracks, and tools) appear in their own windows, which can be sized and moved around at your convenience and then iconified when you don't need them. Price is \$379. (Registered owners of the lower-end version of *Bars & Pipes* can upgrade to the Professional version for \$99, though the original will still be available.) 1293 Briardale, Atlanta, GA 30030. 404-377-1514.

GET SOME HELP

We have been Amigoids for so long around here that we sometimes forget how frustrating it is to be a beginner trying to figure out the mysteries of CLI commands. Now there are not one, but two new online help packages. *AmigaDOS Hyper-Help* can help the beginner

and experienced user alike, providing a hypertext-based online help system. It initially displays a list of commands and keywords, each of which can then be clicked on to almost instantaneously pops up a description and examples. Frequently, there are words in the descriptions that can also be clicked to bring up even more help. It makes for a very useful (and quick) way to learn your way around the CLI and Shell. The company is also working on a version for AmigaDOS 2.0. \$34.95 from *Graphic Expressions*, PO Box 110028, Nutley, NJ 07110. 201-661-0408.

The other help system is *HyperHelper* from *Inovatronics* and uses the hypertext ability of their *CanDo* hypermedia system. Pointing and clicking on a topic brings up what you need to know about both AmigaDOS 1.3 and AmigaDOS 2.0, including C commands and Preferences. The topics are cross-referenced and you're given the proper syntax to use as well as a list of related topics. Two other programs are included with the package: *Run-N-Play*, a sort of maxi-file requester which can run applications, show pictures, plays sound files, and so forth, and *Launch Pad*, which can be configured to give you a list of your most-used software and run it, with parameters, with a click of the mouse. \$59.95. 8499 Greenville Ave., Suite 209B, Dallas, TX 75231. 214-340-4991.

SPIRITED

Spirit Technology's product pipeline is gushing again. This time it's a new all-in-one board for the A500. Called the *In Mate*, it plugs into the socket normally occupied by the 68000

chip (which plugs back into the board - the computer probably wouldn't work very well if it didn't). The thing offers a SCSI controller, RAM expansion up to 8 megs, and a socket for a 68881 math coprocessor. It draws less than 600 ma of power, so it will work with the A500's own power supply. Price is \$549. *Spirit* is also shipping a new hard drive backup utility called *Byte 'N' Back*. In non-verify mode, it claims a speed of 50 seconds per disk, and crams 935K onto a single disk. (Is that anything like ten pounds of flour in a five-pound bag?) If verification is turned on, it takes 135 seconds per disk. Sounds like it could cut a few minutes off your backup time. Amenities include asynchronous scan and what *Spirit* calls "drag by group" file selection. It will also tell you how many floppies you need to do a backup and it's AmigaDOS 2.0 compatible. \$69. 220 West 2950 South, Salt Lake City, UT 84115. 801-485-4233.

HAVE SPEED, NO FLICKER

If you're tired of waiting around for your old, slow 68000 to do its thing, *ICD* has a way to speed up your computing. *AdSpeed* is a replacement 68000 chip that zips along at 14.3 MHz, double the speed of the original 7.16 MHz. The new chip is mounted on a board no bigger than the chip itself, with all sorts of keen electronic gizmos sandwiched in between the chip and the board. It operates using two 16K caches to permit zero wait state processing. The *AdSpeed* can also be software switched down to the original slow speed for software that can't handle the faster speed and it can be used in the A500, A1000, and A2000. It carries a \$349.95 pricetag. *ICD's Flicker Free Video* board plugs into your Amiga's Denise socket, with Denise then plugging into the board, and produces a video signal free of interlace jitter. (Of course, the easiest solution to the jitter problem is to drink enough coffee to sync yourself with the interlace.) The *FFV* board automatically detects whether your system is NTSC or PAL and configures itself accordingly. It handles full overscan up to 832x480 (NTSC) or 832x568 (PAL) and purports to be compatible with all software. It does require a multisync monitor and doesn't create any genlock conflicts. Cost is \$499.95. 1220 Rock St., Rockford, IL 61101. 815-968-2228.



All photographs are of
actual DCTV screens.



The Future Is Here

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* Min. 1 Meg. required

DCTV™ (Digital Composite Television) is a revolutionary new video display and digitizing system for the Amiga. Using the Amiga's chip memory as its frame buffer memory, DCTV™ creates a full color NTSC display with all the color and resolution of television. Sophisticated true color video paint, digitizing and image processing software are all combined into an easy to use package included with DCTV™. DCTV™ also works with all popular 3D programs to create full color animations that can be played back in real time.

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NEWS & VIEWS

COMMODORE NEWS

Commodore has officially announced the sale of its two millionth Amiga. They also announced that the Amiga now accounts for 55% of their total worldwide sales.

Commodore stock is on the move (gradually) upward as this is written. By presstime, the price had recovered from a low of less than \$5.00 to over \$10.00 a share.

Though its introduction into retail outlets has been delayed until "early 1991," Commodore has announced the first 35 CDTV software titles. Categories include classic games, reference works, and children's stories. Among the more interesting titles we spotted on the list: *The American Heritage Encyclopedic Dictionary* from Xiphias; Digita's *Family Medical Advisor*; and Amiga game favorites *Sim City*, *Battle Chess*, and *Defender of the Crown*. The official CDTV announcement will come at Winter CES in January, with retail units supposedly available by the time you read this.

If you kept your eyes open over the holiday season, you may have caught an actual TV commercial or two pushing the Amiga 500C as an alternative to a Nintendo. TV ads ran in many major markets, including Chicago, Dallas, Denver, Los Angeles, San Francisco, and Washington, DC. Print ads appeared in regional editions of *TIME* magazine, and in national editions of

People, *LIFE*, and *Redbook*. Commodore also shipped out a half million direct mail pieces to parents.

LETTERS FROM HOME

Genie Online Information Service has announced Letters From Home, a program that allows families and friends of those serving with the U.S. Armed Forces in the Persian Gulf region to send FREE electronic mail messages via GENIE. You don't even have to be a subscriber to GENIE to use the *Letters From Home* service.

To send *Letters From Home* to service men and women in the Persian Gulf region all you need is access to a personal computer and a modem. Letters are sent electronically, which significantly reduces the time required for delivery over traditional mail, via GE Information Services worldwide network to GE's local telecommunications facility in Saudi Arabia. The letters will be printed, put in envelopes, and then given to the U.S. Armed Forces for delivery to the designated serviceperson.

Subscribers to GENIE need only type the word LETTERS at any menu prompt on the service. Non-subscribers can dial a local GENIE access number or 800-638-8712. To send a *Letter From Home* you will need to know the name and rank, Social Security number, unit or ship and the APO or FPO of the recipient. The GENIE

FREE DISK AND PRIZES TOO!

Using their new HyperBook authoring system, Gold Disk has created a free disk containing a graphic presentation of the Gold Disk product line. The disks are available free from dealers, inside Gold Disk product boxes, and by mail. Each disk also has the potential of being an instant winner of prizes ranging from T-shirts to posters to Sony Discman CD players. Gold Disk, 5155 Spectrum Way, Unit 5, Mississauga Ontario Canada L4W 5A1, 416-602-4000.

system will automatically prompt you for the appropriate info.

To access *Letters From Home*, set your terminal software for 8 data bits, 1 stop bit and no parity. Set the duplex to half. Set your modem and software for any speed from 300 to 2400 baud. Dial the local access number or the 800 number listed above. Upon connection type HHH and then hit return. When the U#= prompt appears, type LETTERS and hit return. You'll then be prompted to enter the appropriate information. If you have difficulties logging on, call GENIE Client Services at 800-638-9636. GENIE certainly deserves a twenty-one gun salute for offering this service.

HERO'S QUEST REVISITED

Sierra On-Line has announced that it has renamed its Hero's Quest computer games to prevent confusion with Milton Bradley's "Heroquest" board game. Following the release of the first *Hero's Quest* computer game Sierra learned that Milton Bradley has trademark applications pending in the U.K. for its boardgame "Heroquest." Sierra has renamed *Hero's Quest: So You Want To Be A Hero* as *Quest For Glory*. The second episode of a planned four-part series, *Quest for Glory: Trials By Fire*, will be released for the Amiga sometime in 1991.

.info UPDATE

CLARIFICATION

The item about the Megachip 2000 in the December New Products section listed the A2000 Chip RAM expander as belonging to Michigan Software and developed by DKB Software. The product actually belongs to DKB Software and Michigan is simply a dealer for it. The correct retail price is \$299.95, which does not include the Super Agnus. For more information, contact DKB at 832 First Street, Milford, MI 48381. 313-685-2383.

ADDRESS CHANGE

AmiExpo has not only changed its name to AmigaWorld Expo, but has also changed addresses as well. The new address is 465 Columbus Ave., #285, Valhalla, NY 10595. 914-741-6500 voice, 914-741-1569 FAX.

WRONG NUMBER

In the New Products section of issue #35 we typoed the phone number for Left Hemisphere, producers of Amiga carrying cases. Their real number is 509-325-0115.

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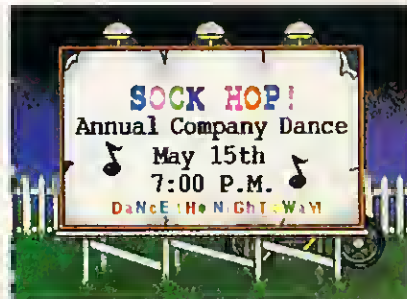
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A detail of the amusing alien poster



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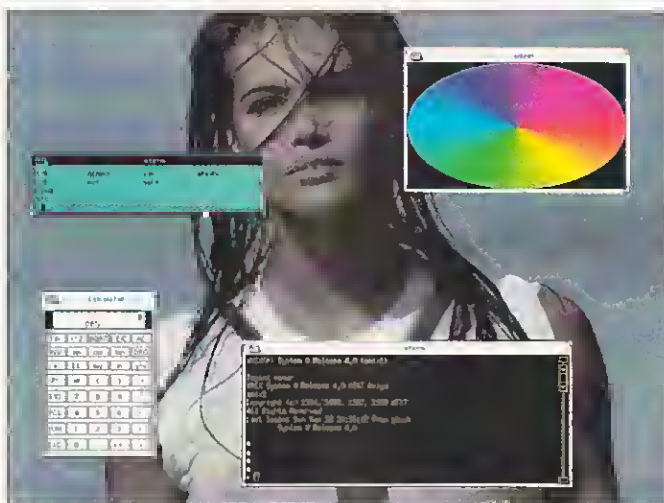
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NEWS & VIEWS

SHOW REPORT

FAI COMDEX '90

Dateline, Las Vegas - Comdex is a business show, and smack dab in the middle of it was a Commodore booth. The featured attraction was the 68030-powered Amiga 3000UX running Unix System V version 4. The system on display sported the 8-bit University of Lowell hi-res color graphics board running *Open Look*, with a sizable window that simultaneously displayed video from videotape or a live camera. Very impressive. Commodore also touted *AmigaVision* with a nicely-produced videotape promoting its virtues. Sharing the Commodore booth were several third parties, including:



RGB Video Creations, showing their impressive *AmiLink 2.0* video editing suite; Digital Creations, demoing *DCTV* (which we were pleased to discover

delivers much more than you might think, and we'll be previewing its many features just as soon as we can get our

Open Look and live video co-existing on an Amiga 3000UX Unix display.

Continued on page 67...

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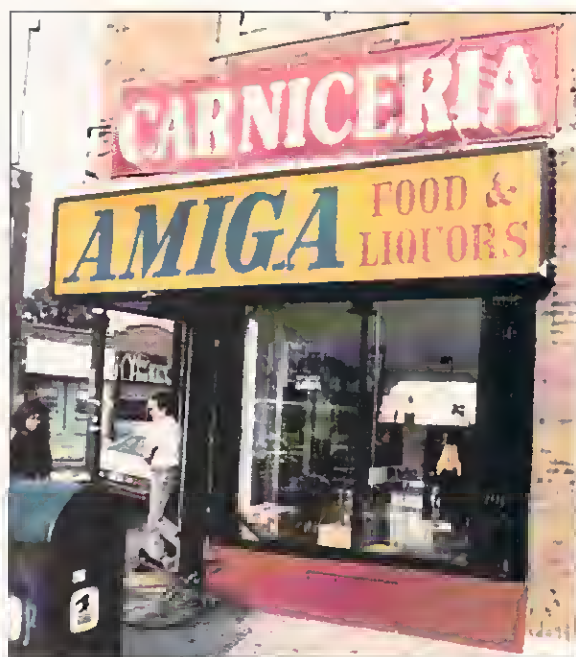


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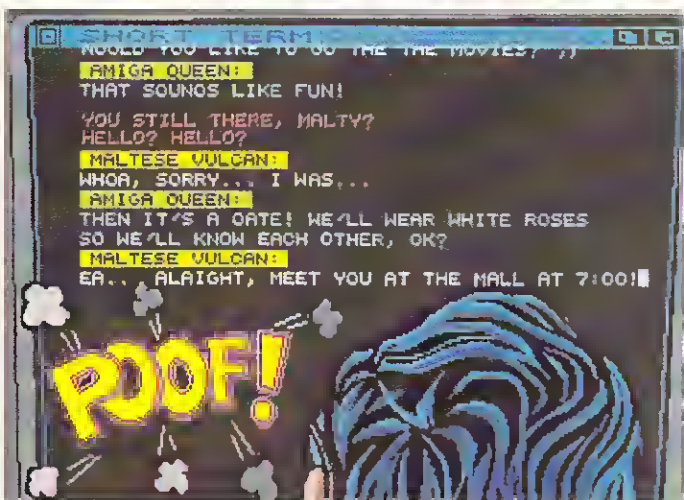
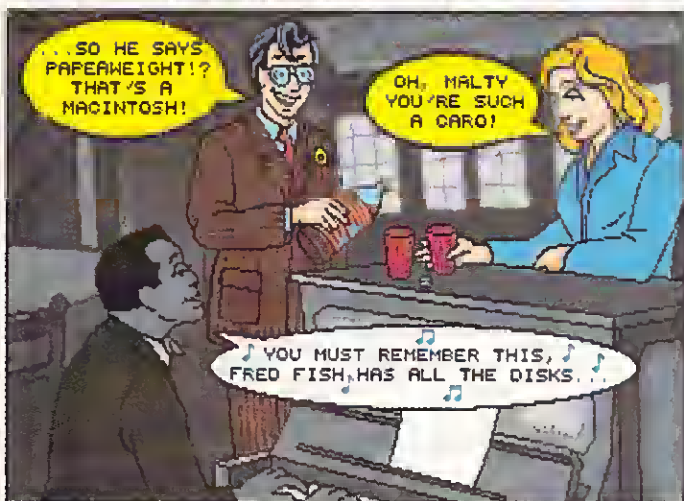
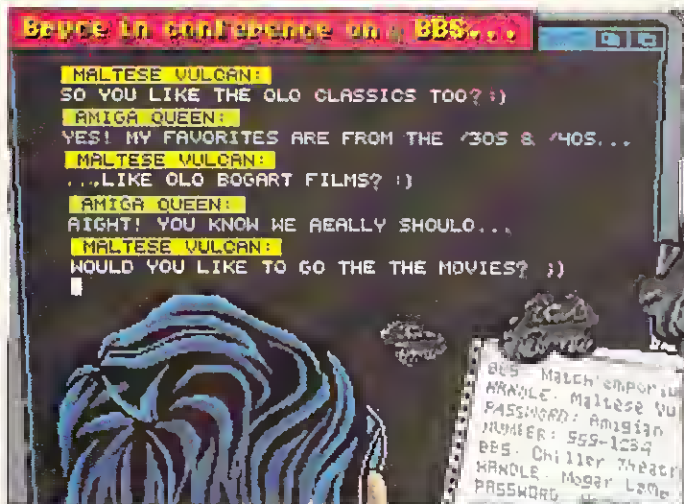


The Amiga Sighting of the Year Award goes to gonzo photographer and .info cub reporter Jeff Lowenthal. Ever on the lookout for news about to happen, Jeff came across this sign featured prominently on an ethnic food, liquor, and butcher (unfortunately, no computers of any sort) shop near Chicago's trendy Bucktown. If you're ever in the vicinity of Kilbourn and Diversy avenues, stop and have your picture taken under the 'Amiga' sign.



BRYCE

ART & CONTINUITY: GREGORY CONLEY



Gregory Conley can be contacted by writing: Gregory Conley, 17320 Laverne Avenue, Cleveland, Ohio 44135

Globetrotting With .info

by Tom Malcom



Impassible crowds made this a typical European computer show.

Jetsetting isn't all it's cracked up to be. Mostly, a trip through Europe involves sitting in airports, sitting in planes, catching taxis and shuttles, scrambling through train stations, sitting on trains, sitting in more airports and train stations, walking what seems like thousands of miles, usually lugging a backbreaking load of heavy bags around, and finally, if you're still alive and semi-conscious after all that, sighseeing a little.

The main reason for my European trip was to go to two Amiga extravaganzas: the Amiga '90 show in Cologne and the Commodore Christmas Show in London. I've been to more computer shows here in the U.S. than I can even remember, but none of them prepared me for what I saw at these two European blowouts. First, European computer shows are overwhelmingly dominated by retailers. About three quarters of the booths at both the Cologne and London shows were manned by retailers selling their wares as fast as they could shove the packages across the counters and rake in the Deutschmarks and Pounds.

The best thing I found is that in Europe, Commodore and Amiga aren't overshadowed by IBM or Mac. The Amiga is popular and it's everywhere; if you mention the word "Amiga", people actually know what you're talking about, no explanations necessary. It is widely used in European business, though for the most part, the productivity software used in Europe is American. Although there is some productivity development, the vast majority of European software devel-

opment is being done in games and entertainment. And what games and entertainment! [Be sure to also see Marshal Rosenthal's report on the London Computer Entertainment Show for details on more titles that were also shown at the Cologne and Commodore Christmas shows - Ed.]

COLOGNE

Cologne, its skyline dominated by the Dom, the largest cathedral in the Rhine valley and the biggest pile of carved rock I've ever seen, is one of the wealthiest cities in Europe. It is filled with elegant and expensive stores in an enormous shopping district. (It's also filled with hundreds of the best pastry shops I've ever had the pleasure to stuff my face in, and I don't think I missed many of them.) The show was held in two large halls of the Messe (exhibition center) across the river from the Dom. Last year, so many people tried to crowd into the show that the local fire marshals had to refuse entry to hundreds of very unhappy people. This year, enough space was added to at least let everyone in, though it was still very crowded at times. Unofficial estimates place attendance at 60,000 and I can easily believe it. Makes American Amiga shows look pretty puny in comparison.

There seemed to be more hardware being shown than anything else, and most of that was genlocks and digitizers. These, of course, were nearly all in PAL format, but it's interesting that video is booming in Europe as well as here in the US. German TV, by the way, is very weird by American standards; it has some of the most incomprehensible game shows I've seen, nudity is commonplace, talk shows predominate, and the commercials are much more entertaining than American ads (and more entertaining than much of the programming, for that matter). There aren't many broadcast channels, and cable is just starting to take off. Developers have obviously realized the potential market cable represents, hence the proliferation of video products. The interest in these products was also evident by the depth of the crowds in front of the video booths, particularly NewTek's, where they were showing the *Toaster* to open-mouthed admirers. The most outstanding European video product I saw was Digital Vision's *Scala* (it's actually being produced by a Norwegian company, and marketed throughout Europe and eventually in the US). It is the easiest to use, fastest, and most sophisticated video titling and effects generator I've seen that doesn't require special hardware. The six disks include the program itself, some very tasty background screens, and a collection of fonts. It has a wide range of transitions, all accessible from a menu panel. Also of note is *Real 3D*, a ray-tracing/animation package from the Finnish company

.info Senior

Editor Tom

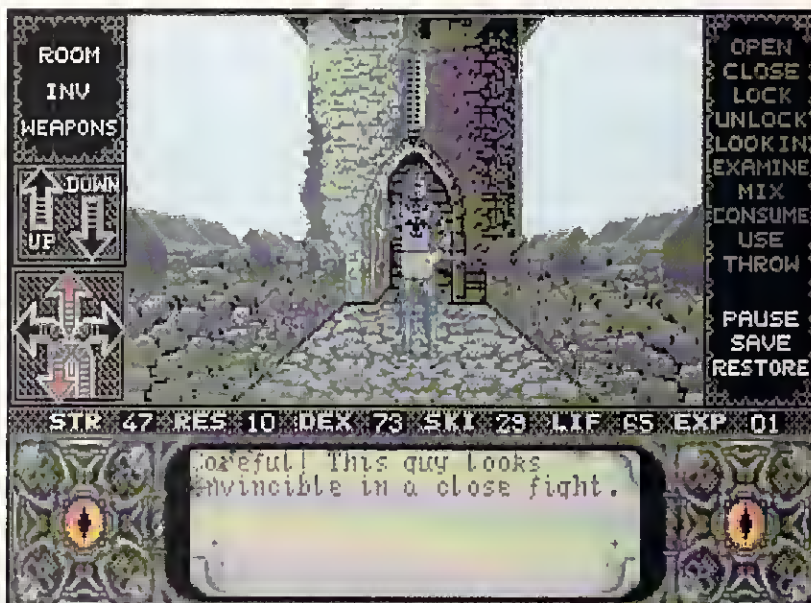
Malcom

reports on the
state of Amiga
computing in
Europe.

Activa Software. The samples I saw looked good, and it claims very fast rendering times. One way it achieves this is to let the user define rectangular areas on the screen and render them in different resolutions, anti-alias levels, and so on. *Real 3D* also supports 24-bit files, Targa format, and the animations it produces use the ANIM5 standard. There's no word yet on US distribution.

About half of the show was given over to games and entertainment. Dominating one of the halls was the enormous booth of United Software, which is probably the largest of the European distributors. It was filled with individual publishers' booths, including Psygnosis, Accolade, Millennium, U.S. Gold, and others. Of the games I saw (and played when I could elbow my way to an Amiga through the crowds), Accolade's *Elvira: Mistress of the Dark* is very funny and captures the spirit of the schlock horror movie hostess perfectly. Millennium's *James Pond* was drawing large crowds. It's a very cute arcade game with an amphibious hero and fine graphics. Millennium also has *Horror Zombies from the Crypt* (love that title). In their own booths, Rainbow Arts was showing *Z-Out* (arcade shoot 'em up), *Masterblazer* (sequel to Lucasfilm's *Ballblazer* futuristic soccer game), *Turrican 2* (sequel to the arcade adventure published in the US by Innerprise), and *M.U.D.S.*, which stands for Mean Ugly Dirty Sport. It's the best of the lot and achingly funny; it has you managing a team of convicts with the idea of getting a live (!) Frisbee into the other team's basket. The rules, if you can call them that, allow everything from fighting to bribing the other team to outright cheating. Magic Bytes had a display with a miniature volcano and dinosaurs promoting Digitek's *Dino Wars*, and they also have several other titles on the way: *U.S.S. John Young* (naval warship simulation), *Second World* (planetary strategy game), and *American Journeys*, which has you as a foreigner trying to arrange a trip through the States - interesting if only for the point of view. Of Starbyte's new releases, *Sarakon* is the most intriguing; it's a variation on mah-jongg and *Shanghai* that has some very tasty graphics and addictive play.

There were also some familiar faces at the Cologne show. Gold Disk exhibited, showing beta versions of *Professional Page 2.0* and *ShowMaker*. ASDG's products were being shown by CompuStore, a large German distributor and importer run by Michael Metz, an Amigaphile of the first order, who was also kind enough to handle the receiving end of getting copies of *info* to the show. They also showed Applied Engineering's and Microbotics' hardware. California Dreams had a booth with their *Bodega Bay A500* expansion system, and GVP and ICD had their hardware lines on display. Australian company M.A.S.T. showed a new 24-bit display card that will be available here in the US shortly. Dr. Oxide and the gang from Pulsar were entertaining the throngs at their booth, and Oxxi, IVS, and Precision were also showing their wares. Precision had an unfinished version of *Superbase 4* up and running, and we'll be seeing the new release before long.



Elvira, a new Accolade adventure starring the schlock horror movie hostess.

PARIS

I wish American trains were like those in Europe: they're very fast, have a smooth ride, and, believe it or not, they're on time. It took less than five hours for the train I caught in Cologne to pass through Belgium and northern France and arrive at the Gare du Nord in Paris. Like the rest of Europe, Paris is encased in scaffolding. I don't think there's any landmark that isn't being refurbished. I spent the better part of a day at the Louvre and then caught the Metro out to Montreuil to visit UBISoft. It's a much larger company than I had thought - we see only a portion of their titles here in the US. The next release they have in the pipeline for America is *B.A.T.*, a graphic adventure with a decidedly cyberpunk flavor. (Oddly enough, Lance Mason, the game's British author, had never even heard of *Neuromancer*.) The game has a moody, *Blade Runner*-ish look and is designed around player convenience. It employs a variable multi-window screen and the various locations are buffered so there's a minimum of waiting around for disk accesses. It will be shipping by the time you read this, along with *Pick 'N Pile*, which we've been playing (and are seriously hooked on) in a beta version around the *info* offices for several weeks. It's a terrifically mindless arcade game with something of the feel of a pachinko machine. Also coming is *LightQuest*, an arcade adventure with a fairy-tale theme and perfectly wonderful graphics.

After leaving UBISoft, I discovered that forty hours just wasn't enough time to see Paris and I had to plane to catch.

LIVERPOOL

I landed at Heathrow on the morning of Nov. 13 and then took a train to Liverpool and Psygnosis. The English countryside is just as pretty as years of reading about it had led me to imagine, but the city of

In Europe,
Commodore
and Amiga
aren't
overshadowed
by IBM or Mac.



B.A.T.T., a graphic adventure with a decidedly cyberpunk flavor from UBIsoft

Psygnosis is
light years
beyond the
rest of the
crowd.

Liverpool is very grim. It's been in the grip of a serious economic depression for some time, mostly the result of the collapse of its shipping industry. While there wasn't a Beatle to be seen, listening to John, Paul, George, and Ringo over the years at least prepared me for the Liverpudlian accent, and I have to admit to a certain kick at being in the city where Beatlemania started. Psygnosis' spacious offices are located in some renovated shipping warehouses overlooking the Mersey. There are 18 Amiga 3000s sitting around, along with other computers and the best games on either side of the Atlantic.

If I ever had any doubt about which is the top game publisher in the world, I don't any more - Psygnosis is light years beyond the rest of the crowd. The company is jointly owned by Jonathan Ellis and Ian Hetherington, whose vision and creativity are taking computer entertainment into its next generation. Psygnosis has released a flood of titles in recent weeks [take a look at the five reviews and previews in this issue - Ed.] and though not everything they attempt is completely successful, at least they're willing to try different ideas and approaches. Much of what I saw during my visit is going to blaze the trail for the types of entertainment we'll be seeing in the next few years. As Ian Hetherington told me, "Somebody has to decide where computer entertainment is going and take the first step." More than any other company, I think Psygnosis has realized that we're moving away from mere games and into broader, more complete entertainment. They are, of course, working on CD, though they have some serious doubts about the viability of Commodore's CDTV. They are developing for it, but expect the CD-I format to win out in the end. The CD work Psygnosis showed me was running on a Japanese FM Townes machine, which is very expensive and so far unavailable in the US. The demo consisted of a flight

through a fractal landscape at breathtaking speed. The frames for the landscape had been generated on an Amiga, and then translated over to the CD. The game that eventually results from this experimentation will be more completely interactive than anything we've seen so far; since the landscape is mathematically generated, the player will be able to fly anywhere through the landscape and even shoot the tops off the mountains.

Of the Amiga games Psygnosis has coming, *Carthage* and *Obitus* are the standouts. *Carthage* is a blend of wargaming and chariot racing set during the Punic Wars in ancient North Africa and it pits you against the invading Roman armies. The wargaming aspect uses fractally drawn maps and the easiest, most intuitive play I've seen in a wargame. The racing is also outstanding; it lets you see the road much farther ahead than any other racing simulation. It was *Obitus*, though, that made my eyes pop. *Obitus* is, simply put, the best game I have ever seen. It is a graphic fantasy adventure that must be seen to be fully appreciated. The artwork and animations are exquisite, featuring fast, smooth scrolling from one location to another. More than any other graphic adventure, *Obitus* gives the feeling of actually being there. The programmers were just putting the finishing touches on it while I was there, so it should be shipping in a matter of weeks.

The evening I was in Liverpool, Psygnosis hosted a get-together of local dealers and it was fascinating to get their perspective on the industry. They confirmed what I had suspected, that British gamers, "punters" as they're called locally, are much more serious about gameplaying than we are in the US. Given the high cost of games (between £15 and £25), they have to be. (In fact, England is the most expensive place I've ever been - the British spend pounds like we do dollars, except a pound is worth almost two US dollars. Ouch!) I'd already been playing a beta version of *Lemmings*, but this was the first time most of these dealers had seen it. Their reaction was about what I expected; they nearly had to be physically torn away from the computers, and crowds of kibitzers gathered to tell the person playing how to do it. It confirmed my impression that *Lemmings* will be another blockbuster for Psygnosis. (Incidentally, the latest craze among the Psygnosis gang are bad lemming jokes: What do lemmings drink? Lemming-ade, of course. Their favorite dessert? Lemming meringue pie. You get the idea.)

LONDON

From Liverpool, I trained back down to London for the Commodore Christmas Show. Somehow, I had gotten the starting date for the show a day early, so I was left with an extra day for sightseeing. Rather than blow it on the usual tourist stuff (though I did plenty of that, too), I used the time to visit a few smallish retailers and to hit some of the enormous Virgin stores (no, they don't really sell virgins, I know because I asked - this is Virgin as in Virgin records, Virgin games, and Virgin airlines). The retail shops have a much different atmosphere than the ones here. There

are two basic types: one caters to the business end of things and the other to entertainment buyers. The business retailers are just as boring as the ones here in the States, but the game-oriented shops are much more colorful, the walls and windows completely covered with game posters, games blaring, and glassy-eyed "punters" everywhere. The ubiquitous posters are avidly collected, something we don't see much of here. The Virgin Mega Stores are amazing places; on one street in London I saw three of them in a single block. One was for music, one for books, and another for software and games. The mix of products in the games store was enough to warm the cockles of my heart. The Amiga section was by far the largest, with somewhat less space for Atari, and about half as much for IBM and Amstrad. The most surprising thing, though, was that there was only one miniscule rack of Nintendo cartridges; Nintendo is just getting started in Europe and it isn't picking up steam very quickly. I think the reason has to be that Europeans are accustomed to better games than Nintendo is capable of - they already own Amigas!

The Commodore Christmas Show was held at the Novotel hotel, crammed into three smallish rooms on two levels. On Friday, the aisles were crowded, but not jammed, but on Saturday, I was finally forced to give up the fight by mid-afternoon. I have never seen so many people crammed together at a trade show and they were all in a buying mood. It looked like a feeding frenzy on the floor of the New York Stock Exchange. Trying to talk to any of the vendors was an exercise in yelling and trying to hear a reply over the roar of the crowd. It was truly magnificent to behold.

There was considerable confusion over two hardware products, one called the *Amiga 1500* and the other *A1500*. The *Amiga 1500* is the latest marketing ploy from Commodore U.K. and is simply a bare-bones A2000 equipped with two floppy drives and a new name plate. The *A1500*, on the other hand, is a third-party expansion system/replacement chassis for the A500. Unlike California Dreams' *Bodega Bay* system, the *A1500* requires taking the A500 apart and fitting its innards into the new box, which gives it capacity for two floppy drives or one floppy and one 3.5" hard drive. It will also accept A2000-style cards and even has a video slot. The best part, though, is that the *A1500* provides a separate case for the A500's keyboard, detaching it from the CPU. There's also a rack-mount version of the system available.

Commodore was also exhibiting their C64 game machine, which they've wisely decided not to market in the US. This cartridge machine will probably do fairly well in the UK, given the lack of Nintendo penetration and Commodore's well-established name. The biggest difference from the old C64 cartridges is that the new ones will hold up to 256K, so games will be much larger.

The best news I got at the show is that Domark will be publishing an Amiga version of *S.T.U.N. Runner*, probably the best coin-op racing game ever done. They're also coming out with *'Nam* (strategic wargame), *MiG-29 Fulcrum* (flight/battle simulator),



LightQuest, an arcade adventure with a fairy-tale theme, also from UBIsoft.

Hard Drivin' II (head-to-head car racing with modem support), and *3-D Construction Kit* (a vector-graphics virtual reality system).

There were several other game publishers at the show, including Ocean (we'll be seeing several of their titles published in the US by Electronic Arts) and Elite, which is releasing *Tournament Golf* and *World Championship Soccer*. On the news front, Mirrorsoft has signed an exclusive agreement with Konami to publish their titles in the US.

JETLAG

If there's any one observation that stands out from my travels, it's that we now live in a global market. I think the New Europe that is emerging in the post-communist world is going to be more of a force than any of us can imagine. The US is still very influential on European pop culture (I was told on a couple of occasions that Europe still follows about two years behind American trends), but there's change in the wind. We're already seeing the domination of the European game publishers in the American market, and I have little doubt that it will continue to increase. It became clear that the European segment of the Amiga market is ultimately going to dictate the course of American development. That's not necessarily a bad thing, but it certainly isn't the image we Americans have of our place in the world.

The trip was a grand time, both for the sights and the software. I can hardly wait to go back and play some more. If I can find time to brush up on my languages, take a pack horse to haul stuff around, and charter a cargo plane to bring it all back, next time will be perfect.



I have never
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The London Computer Entertainment Show

by Marshal M. Rosenthal



Swiv, a fast moving vertical scrolling shoot-em-up from Sales Curve.

O kay, loosen up. Before we start traipsing down the rows of London's Computer Entertainment Show, a few ground rules about the overseas market are advised. Keep in mind that these guys are *serious* about game playing - they know where their bread and butter comes from. Games are popular; they've always been popular. With such an attitude, and heavy competition for the gamer's Pound, it's obvious that everybody's going to try harder to stand out and excel... the results being plenty of good games at reasonable prices. Can you imagine a budget line of Amiga software at \$5.00? U.K. companies do, did, and have been producing such a line for almost three years now.

Now that you've got the basics, imagine the Earls Court's Convention Center - a twenty minute tube (subway) ride from the heart of London. From the outside it's far less than splendid, just the usual big, gray, concrete block of space. Fill it to the rim with software companies in multicolored stands resembling circus sideshows and expensive car showrooms; then it's something else.

Let's start out with U.S. Gold, who are using a red sports car to attract attention to their stand. *E-SWAT*

requires the services of the Cyber police in order to restore order to the city. But before you get the "goodies" like super armor and weaponry, you must fight through levels as a puny human - 15 levels of action, special weapons, and plenty of goons to take on. *Line of Fire* places you in the role of "peacemaker" as you battle terrorists throughout the world. Based on the arcade, you've a helicopter, speedboat, and jeep to keep your feet from aching in the pursuit. *U.N.*

Squadron is too real to appreciate - flying missions in F14's and A-10 Thunderbolts over the Middle East. *Gold of the Aztecs* is full of brainteasers as well as graphic adventure, with 26 megabytes of graphics and 7,000 frames of animation... plus plenty of sound and trouble. Which is what Strider has his hands full of in *Strider 2*. Now he can climb ropes and chains in pursuit of the bad guys - still using his sword and tasers to cut them down to size.

The French company Loricel presented three new titles (through the auspices of U.S. Gold). *Moonblaster* takes you to the outer fringes of the solar system in a test of skill and outer space spaceship handling. Scenes are enhanced with "Full-Vision", which scales landscapes as they approach or recede from the player's first perspective point of view. *Outboard* plops you in the Earth's ocean, racing through glamorous cities in an overhead powerboat simulation. *Magician* confines you to a labyrinth that must be navigated out of, one filled with evil frogs, traps, and plenty of nasties.

Also French is Krisalis, who brings us *Hill Street Blues*, based on the TV show. You play Captain Firillo and must keep law and order within your precinct by assigning patrol men as needed (keeping in contact via the radio/car fax).

Going further out, as in 2000 AD, gives us *Rogue Trooper*. Based on the comic book, there are two distinct scenarios. The first has you striving to locate the mad General amidst the ruins of Nu-Earth, combining adventure with pure shoot-'em-up action.

Ocean is nearby, their 20x30 foot video wall enticing with new releases. *RoboCop 2* returns to old Detroit, and the metal boy's got to take on the evil Mastermind, defend the innocent, and deliver justice in this arcade-styled action game. Or fly to Mars with Arnie in *Total Recall*, filled with plenty of weird things and places, plus lots of weapons to use. *Nightbreed* gives you two action scenarios to play in, one arcade-oriented, the other being a graphic adventure

Marshal M.
Rosenthal
reports on
gaming in the
United
Kingdom.

that takes you into this H.P. Lovecraft-like world.

Moving over to pure arcade gives us plenty to do. *Chase H.Q. 2* continues the pursuit of criminals, who now shoot back (just like the real world). It's a return to that lean, mean, racin' machine, as you travel from Paris to the Sahara. *Toki* is the weird one, where you've been turned into an ape and must fight off hordes of disgusting creatures - all the while searching for the potion to make you human again. Finally, *Narc* gives you the chance to make a difference. But mostly it gives you the chance to shoot all the bad drug guys, and blow them up with a missile launcher.

Sales Curve, a UK game design house, has launched their own Storm software label. Upcoming are *Double Dragon 3: the Sacred Stones*, which has Billy and Jimmy out to defeat the evil Black Warriors and find the three Rosetta Stones. *Solar Jetman* gives the opportunity to explore twelve alien planets, while *Asylum* is a top-view three player interactive heavy metal fantasy action adventure based on the coin-op.

A sort of sequel to their successful *Silkworm* is *Swirl*, a fast moving vertical scrolling shoot-em-up which requires total concentration and quick reflexes. Drive a jeep, or fly a 'copter, and take on dozens of enemies - often rapid loaded amidst the game play. *St Dragon* has this strange beastie taking on the Cyborg Monsters.

We pass by Commodore's large, airy space. They're showing off the CD-ROM unit we know in the States as CDTV, although it's planned to appear some six months later than the US debut. No software is being shown - it's all played close to the vest so that a bigger splash can be had by their new C64 game console. This unit looks like a C64 without keyboard, with the cartridge slot placed in the same spot, but vertical.

Mirrorsoft has a few oddball games working, one being *Duster*. Set on an alien world too close to the sun, mutations are the norm and having to wipe them out is a full time task. As a bug-hunter, you pilot a small aircraft designed to eradicate these vermin. *Flip-It and Magnose* are two citizens of Mars out to visit the Earth and take back gallons of water for the thirsty planet. Only one of the two can return in triumph - making for a nasty bit of competition. Six levels of platform action, split screen displays, and parallax scrolling make this a wacky trip indeed. The arcade/violence fan will be glad of *Predator 2*, and the chance to bag the "big one" (careful he doesn't get you instead). Reminds me of the streets of New York on a bad day, only now it's also open season on drug gangs.

Well represented at the show (with a delightful set of chairs to rest on) is Domark. Continuing their James Bond titles is *The Spy Who Loved Me*. Similar in execution to previous ones, *Spy* features a number of action-oriented scenarios to participate in. The purpose is to eliminate the arch villain's scheme to destroy the Earth and repopulate it with his own personal underwater Atlantis.

Still driving about gives us *Hard Drivin' II*: rev up to speed and take off in a nitro-injected race car. New features include telemodem between other computers, and the ability to edit the track. Redesigned courses



Commodore's C64-based cartridge game machine is not scheduled to appear in U.S. stores.

allow for street elements to be moved as well.

Badlands comes from the creators of *Super Sprint*, and is a coin-op conversion filled with hazards. Drive your car past overlapping vehicles, tight corners, convoluted tracks, and "natural" hazards like crumbling buildings and falling power lines.

Electronic Zoo expects the World Cup to still be on people's minds, and so they've created *Ubbuteo*, a version of the table top game (which comes from the Latin name for the Hobby Hawk - "Falco Subbuteo"). Using AI, the player must pit his wits against the computer on three levels.

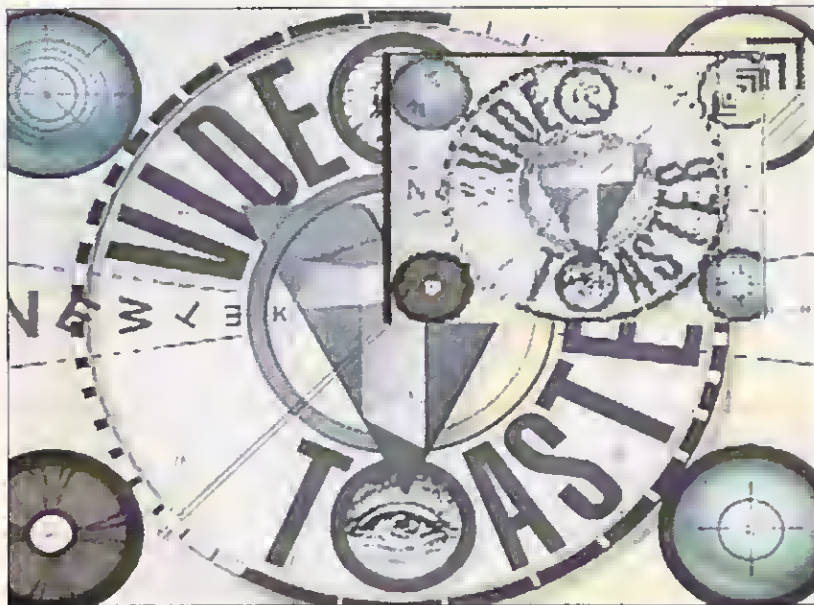
While the Brits love to tend their gardens, sometimes the weather interferes. This is where *The Magic Garden* comes in. Potential is the key word here, for it's up to you to decide how many flower beds to plant, whether to do vegetables, where to place a shed or greenhouse. Then watch it blossom and interact within its own environment. Grobble the gnome is always on hand to do the dirty weeding and other work - but watch out for the jealous gnomes out to ruin your handiwork. And of course there are magical things going on to contemplate.

Is there any more? You bet, the show just seems to go on and on. But humans, unlike software, do get a bit tired now and then. Not to mention hungry (the show sells horrible "American-style" hot dogs that could cause Anglo-American relationships to wither away). So it's off to get some good, typical British fare. That's right, we're heading for the McDonald's down the road.

Marshal M. Rosenthal is an internationally known photographer/writer. He still hasn't given up the idea of becoming a rock star, though.

The show
just seems
to go
on
and
on.

V Oran J. Sands III on Video



The quality of the compressed image during *Toaster* effect transitions is not of high quality, but looks fine as long as the image keeps moving.

Your
Video Toaster
has finally
arrived and you
need to set it up.
Don't worry,
Dr. Video is here
to help you.

How to set up your shiny new *Video Toaster*: First of all, pay close attention to the *Toaster* installation instructions (i.e. read them!). Removing the power supply tray is a bit time-consuming, but the *Toaster* must clear the disk drives or else you'll have some expensive junk on your hands. Remember, never force anything! (I'm going to assume that you have already installed the necessary RAM cards and tested your Amiga to make sure it was working with them *prior* to installing the *Toaster*.)

Now you load the eight disks of material onto your hard drive using the program on the first disk. It will cue you as to when to put the other disks in the drive. All the *Toaster* programs together will consume seven megabytes of hard drive space so make sure you've got it to spare. With this completed, you can now start up the *Toaster*, either by Workbench icon or using the special startup-sequence at reboot time.

With this little bit of work you now have a functioning *Video Toaster*. But using the *Toaster* can be a multi-level experience. At every step you'll probably incur more cost and need more equipment. Before you jump in, you need to examine what you want to do.

MINIMUM DAILY REQUIREMENTS

The minimum setup is to use a single source of video attached to input #1. With the output of the *Toaster* hooked up to a recorder or a display device you can use the numerous TDEs (*Toaster Digital Effects*) to transition from the source to an image in the framebuffer, colorblack, or a color background. This arrangement is mostly limited to playing around and showing your friends, wife, and relatives the nifty new thing you've bought. It is possible to use this arrangement in a post-production mode, however, building your final tape in pieces that are edited together. Also don't forget that the *Toaster* will act as an Amiga genlock when not used as a full-blown *Toaster*, though it is a very basic genlock with no fades or control and any tape source that passes through it must be stable (no non-Timebased Corrected VCRs). You can also render 3D images with *Lightwave*, paint with *ToasterPaint*, grab still video frames, and output graphics or characters to tape.

MOVIN' ON UP

The next level of implementation is to add a second video source. It is at this point we separate the men from the boys (because, as we know, the only difference between men and boys is the price of their toys). Any second video source must be referenced to the first. In order to do that you need a camera (or camcorder) that can be synchronized to the first. In the world of video that's called "genlocking." Very few consumer grade cameras have this ability, making them unsuitable for use as a second source of video for the *Toaster*. Cameras that *do* have genlock capability are usually of higher quality and, of course, price. Expect to pay at least \$1500 to \$2000 for a "prosumer" or industrial grade camera. Any money spent on a camera of this grade will reward the buyer with not just genlocking, but usually also higher quality video and more control features. In video you can never have a camera that's good enough.

If you want to use a VCR as your second source of video (or your first, for that matter) it will also need the ability to genlock. And more importantly, as we mentioned earlier, it will need to be timebase corrected. Simply put, its video output must be as stable as a camera's (see the sidebar). In order for a VCR to be timebase corrected it should have special inputs for Advanced Sync and subcarrier (SC). These are signals that are sent from the timebase corrector

(TBC) to the VCR. Most TBCs will not properly correct a VCR's video unless these signals are used.

Current TBCs cost from about \$1000 to as much as \$10,000. VCRs that can accept connection to a TBC start about \$1000. The industrial line of VHS decks from Panasonic's AG series is a good example of such decks. Editing decks routinely have the proper connections.

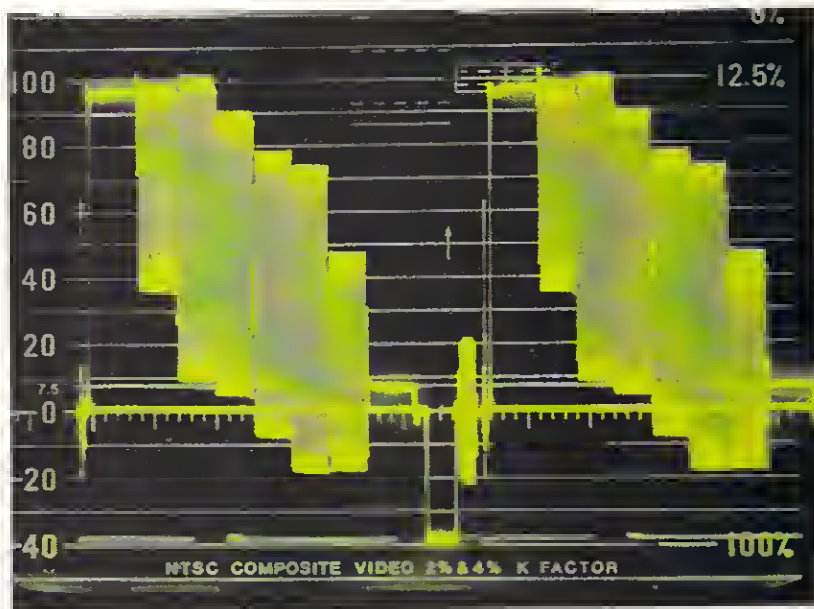
The only alternative to TBCs is to use a framestore device. This unit is basically a TBC with 525 lines of correction - a full frame of video - hence the name. When you have this much correction there is no need for the advanced sync and subcarrier signals.

MAXXED OUT

The maximum setup for your *Toaster* is to integrate it into a studio system. Here *all* sources are synchronized and may be fed to the *Toaster*. It could be used "upstream" or "downstream" of whatever other switching device you may have. Or you may choose to replace the switching unit with the *Toaster* itself. If used with another special effects generator/switcher you'll have a mess of signal timing problems. Unlike most video devices that genlock, switchers such as the *Toaster* usually don't have adjustable timing. This means using external delay devices with the *Toaster* to time it to something else. This is nothing that can't be overcome with some more money and effort. Often in such a setting, all video sources are synchronized to a master reference source, perhaps the black burst output from a sync generator.

HOW GOOD IS IT?

As you can see from the pictures (if you are familiar with 'scope displays) the *Toaster* output is reasonably clean. It passes composite video thru with



Full field color bar output from the *Video Toaster*.

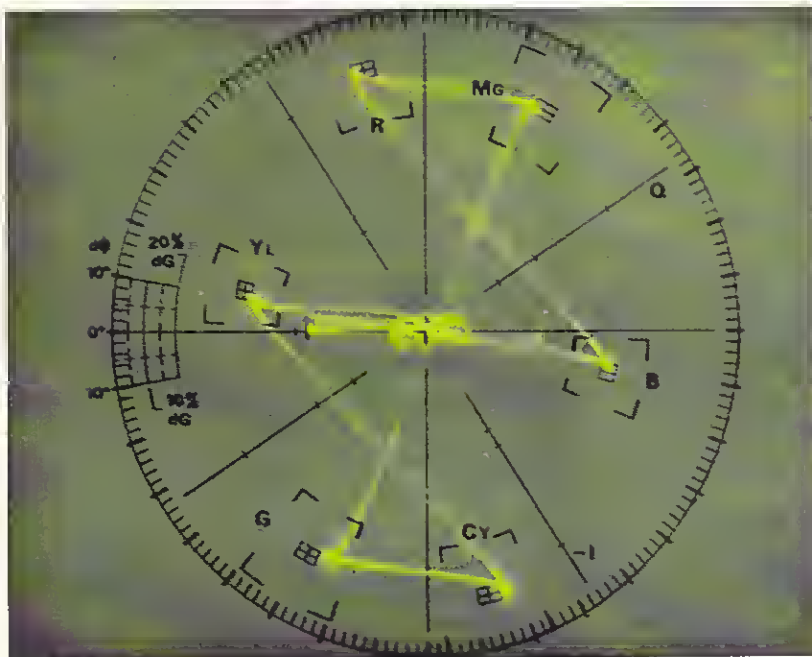
little alteration and the bandwidth exceeds 4.2 MHz. Fans of Y/C signals will cringe at the thought that the *Toaster* does indeed only work with composite video signals. Although not as clean as Y/C, composite video is the common denominator for all video systems and still the standard of use for most studios. The *Toaster's* specs assure you that the video will at least be as clean as it can be.

The *Toaster's* framebuffer output is also accurate. The *Toaster* interface allows you to display a graphic known as SMPTE color bars, a color bar test signal with not only the primary colors and their combinations but a 100% white and I and Q signals as well. The picture shows the vectorscope reading of this image.

ONE LITTLE THING...

One thing the scope picture won't show you is the quality of the compressed image. For this you only need your eyes. Use the manual transition mode and shrink an image down to about half size. Although the picture is still live video it is not very viewable. To make such compressed images look nice you need what are called "spacial filtering" algorithms built into the firmware. These are standard in expensive equipment but have been left out of the *Video Toaster* to keep it inexpensive.

Tim Jenison, president of NewTek explains that "the *Toaster* is mainly a transition device." The idea is to keep the image in motion so the lack of resolution at that point isn't noticeable. So if you're thinking of shrinking that picture down to half size and putting it over a newscaster's shoulder, you should consider doing something else. Keep this shortcoming in mind and simply plan around it. (It should be noted that none of the *Toaster's* effects offer a pre-planned stop of the transition in progress).



Vectorscope analysis of the *Toaster's* color bar output, above right.

Although the *Toaster* is a unique device, it is installed no differently than any other video unit of the last 15 years. How you use it depends on your imagination and your bankroll. The average amateur videographer may find limited use for the *Toaster* with their current equipment, and indeed may be facing a major investment to get up to speed. The average industrial studio will probably be able to drop a *Toaster* into their system with little to no extra expense (other than the initial purchase of the *Toaster* and a loaded A2000HD). A broadcast station buying one

out of spare change would most likely not use the *Toaster* for major production but will love using it in a news editing bay. Production houses will love having one for their off-line editing bay or for a cheaper on-line editroom.

There is no doubt in my mind that the *Video Toaster* will be a welcome addition to many video studios. Although recent advances have made amateur video a reality, it still costs money to move up, even with the initial low price of the *Toaster*. The *Toaster* is more realistically an industrial video unit than an amateur level device. For every higher

level of implementation of the *Toaster* the price jumps up dramatically. Plan your future purchases with *Toaster* compatibility in mind and you'll be okay. The *Toaster* isn't quite the ubiquitous \$1600 video answer some dreamed it would be, but it's a dam sight less than the \$30,000 you would have spent last year to do the same things.

ADDRESS

NewTek, 215 East Eighth Street
Topeka, KS 66603, 913-354-1146



SO WHAT IS TIMEBASE CORRECTION?

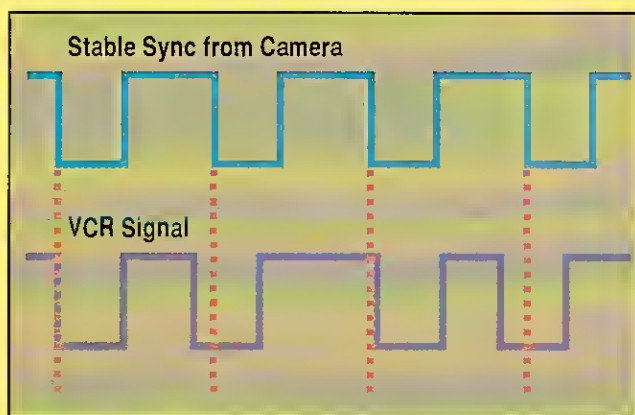


Diagram 1. Stable sync versus typical VCR sync.

The video timebase corrector (TBC) goes back to the Sixties, when it was built with tubes and took up two tall equipment racks. Today's TBC's are small enough to be built into a VCR. But the reason for using one back then is the same as it is today. Every VCR relies on mechanical means to reproduce a video picture. But tape stretches and shrinks; it jerks across the heads, which are spinning and acting like gyroscopes when the VCR is moved; etc., etc. All these things make the signal from a VCR unstable. In the early days the signal was so unstable that many tapes were unviewable on a monitor. The answer was to find a way to stabilize the sync of the signal.

If we compare a stable signal to a VCR's (Diagram 1) we notice that the stable signal's sync is always of the same duration and occurrence. It's 5 μ secs wide and occurs every 63 μ secs like clockwork. But the VCR signal varies the length of time between sync signals - sometimes shorter, sometimes longer. If the tape is running a bit off speed, the duration of the sync signal can change as well.

The TBC corrects for this by changing the

VCR signal to digital data which is stored in memory (see Diagram 2). Due to the large amount of data created, early TBC's stored only one horizontal line of video at a time. Unfortunately, portable VCR's created errors that exceeded that. Soon TBC's offered more lines of storage (often referred to as the "correction window.") With this data in memory, all that remains is to make sure that it leaves the memory in a nice orderly manner. To insure this, a built-in sync generator is referenced. When it says "Go!" the next line of data is spit out: no sooner and no later. A wonderful side effect of using a reference source is that we can feed another signal to the sync generator inside the TBC. If the sync generator is synchronized (genlocked) to our other signal, the VCR output from the TBC is not only corrected but synchronized as well. Now we can mix other signals with our VCR's for whatever effects we desire.

To make the TBC's job easier, though, it will feed back an "advanced" sync signal and sub-carrier to the VCR. The VCR uses these signals to align itself with the TBC's internal reference as much as possible, thus reducing the

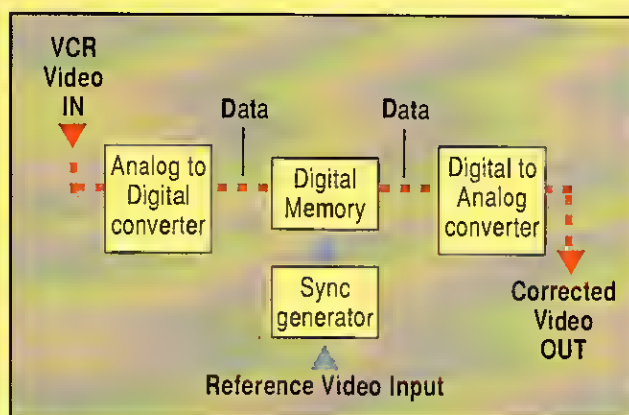


Diagram 2. To stabilize VCR sync, the VCR signal is converted to digital data.

overall error. With this you don't need as much correction and can spend less on a VCR.

If your VCR doesn't have inputs for these TBC signals then you need a window of infinite correction. That means storing all 525 lines of a video frame. A TBC which does this is called a "framestore." (Catchy, huh?) It doesn't need to feed back any signals to your VCR. In fact, any video signal could be fed to a framestore and be output in a stable and synchronized manner. Network broadcasters use these to synchronize satellite and microwave feeds from wherever.

VHS tape decks possess perhaps the worst timebase of any current videotape format. Duplicating a tape without a TBC adds the first VCR's instability to the second's for a cumulative error that is a mess. TBC's won't make these tapes look any better, but they'll at least make them viewable and synchronizable. TBC's have gotten inexpensive enough that more and more studios have one for each VCR. Ten years ago I bought a 16-line TBC for \$10,000. Last year I bought a framestore for \$2400. Next year many VCR's will have them built-in. Ain't life great?

Osaka and the Turbo SIG

by Harv Laser



Victor Osaka

It is a late summer weekend evening in Southern California and, like flies to honey, AmiExpo Anaheim has attracted the devoted and the curious to the Disneyland Hotel. After a day of information overload from the show's exhibits, seminars, classes, and keynote speeches, and lugging their requisite bags full of literature, most of the tired but happy crowd filters out to the parking lot for the drive home, or hops the Monorail for a swoosh over to the Magic Kingdom across the street.

But not everyone has left the halls of the hotel, and soon some begin to gather around the huge wooden doors that lead into the hotel's aptly named "Grand Ballroom," a lush and cavernous auditorium festooned with one of the largest crystal chandeliers imaginable. Many in the lobby outside the ballroom know each other and exchange pleasantries. A few show-goers leaving the exhibits wander by and ask what's going on. "It's a special meeting of the *Turbo Silver* SIG," they're told. A young man, slight of build and looking in every direction at once, rushes by and zooms through the doors. "Hi Victor!" someone shouts to him.

Up on stage in the hushed acoustics of the heavily-upholstered ballroom, Victor Osaka is fiddling with the connections behind some Amigas and testing out the large screen projection system to make sure all is perfect. As the lights dim and people settle into their seats, Osaka introduces Mike Halvorson, President of



Impulse, publisher of *Turbo Silver* and its forthcoming descendant, *Imagine*. This is what the SIG members have been waiting for for months: a chance to actually listen to and throw questions at the man whose company makes the products they have been using, abusing, adoring, struggling with, and trying to master. Victor Osaka must be particularly proud of this moment, for tonight's meeting is the frosting on a year's worth of work for him as the founder of the *Turbo Silver* Special Interest Group.

INDIVIDUAL AWAKENING

A few years ago Victor Osaka could have been classified as your typical Industrial Designer. Today, however, he's a bit harder to pigeonhole. "I find myself in constant motion, doing many things in and out of the world of the Amiga," he says. "My company - Design Osaka in Santa Monica - develops products for various industries and startup companies, from wheelchairs to automotive accessories to household products. I keep myself quite busy."

Victor, who describes himself as "quite shy," was first attracted to the Amiga as he walked by a Software Etc. store in Los Angeles. "There was a colorful animation of a Juggler fashioned in sort of a 'Michelin Man' model," he explains. "Later a friend of mine, Mark Zeavin, and I decided to each buy Amiga 2500s. I needed a machine to do computer-aided design."

Artists have
always
gravitated
towards each
other.



Threeheads © Gregory Denby 1990

Little did I know that in a couple of years the Amiga would become so much a part of my life."

GROUP ROOTS

As its founder and president, much of Victor's life now centers around the *Turbo Silver* SIG, an "International Three-Dimensional Computer Graphics and Animation Educational Foundation." Osaka says, "The SIG was formed in December of 1989 because (a) I felt very strongly about *Turbo Silver*, (b) I wondered why there were so few members who used it in the Los Angeles Amiga Users Group (LAAUG) and (c) those users who I did find had many questions regarding its operation."

Historically, this is not an uncommon place for an artist to find himself in. Artists have always gravitated towards each other, and entire enclaves and communities have sprung up where they can share their talents, heap praise and criticism on each other's work, and enjoy the camaraderie of a gathering of people with similar interests and shared artistic passions. A group like the *Turbo* SIG could be the 90's West Coast equivalent of a late 19th Century Parisian artists' bistro.

Victor elaborates on the origins of the SIG: "*Sculpt Animate* was a very popular program that a lot of people had and used. But I found a much smaller number of *Turbo Silver* owners out there. That's why we decided to focus on *Turbo Silver* and not *Sculpt*." His obvious preference for his renderer of choice is clear. "It's interesting that you can always tell a *Sculpt* rendering when you see one. It has a plastic look to it. A *Turbo Silver* image is much more sophisticated and refined. A lot of *Turbo Silver* owners were owners of *Sculpt* and realized that it just couldn't realize their visions."

"With support from LAAUG, our group had a meeting place and interested folks. Our meetings were

packed, with as many as 70 people in attendance. It's always a lot of fun."

During the Summer of 1990, the *Turbo* SIG was allotted a room and a time slot during LAAUG's monthly "Super SIG Day" held at a West Los Angeles auditorium complex. This worked well for a while, but lack of air conditioning in the aging building, combined with L.A. summer weather and the desire to expand the SIG into something more than a splinter group of LAAUG, forced Osaka to find it a new home. The group now meets monthly in the community room of a shopping mall called The Westside Pavilion. Most meetings load the room to capacity, and each month there seems to be more interest. Even this larger venue may soon be too small.

MEETINGS

Regular meetings of the SIG find Victor and others hauling their Amigas to the site. (Ah, our kingdom for a portable or laptop Amiga!). The members arrive, the meeting is brought to order, and Victor outlines that day's schedule and touches on any other important topics.

Demos by visiting software companies or SIG members who have acquired new and interesting 3D-related products are frequent. Although *Turbo Silver* (and, soon, *Imagine*) has always been and will continue to be the SIG's centerpiece, many other products are deemed of interest and can be seen as accessories to *Silver*. Recent SIG meetings have featured demos of Virtual Realities' *Vista*, a 3D landscape generator which can optionally save files in *Turbo Silver* format; Axiom Software's *Pixel 3D*, a flat 2D IFF to 3D object conversion package; and 3D object and animation disks from Joe Conti and Polar Arts Software. Steve "Dance of the Stumblers" Segal, David "Pro/Motion" Durham, and *.info*'s own Brad "The Sentinel" Schenck, who is also a SIG regular, have all demonstrated techniques and products related to *Silver* in particular and Amiga 3D in general.

Victor fondly recalls one recent meeting's special attraction: "I had the Fresh Video Company show their portfolio video tapes. These were high-end graphics, very slick and commercial. But my intention was to expose our members to the very latest and best computer graphics being produced today. I also wanted to point out that the trend is to move away from the typical hard-edged glass and steel logos towards more organically-shaped objects with expression and movement. You can still remain commercial yet break away from the pack. Although it's easier to create simplistic geometric forms and have them fly by, we humans are not geometric and it is important to feed our psyches with images that contain personality and warmth."

TURBO PEOPLE

"This group and its newsletter are very important to me, and that drives me to devote a great deal of energy towards its success," Victor says. "We now have an international membership. The best *Turbo Silver* artists belong to the group, even if they live too far away to attend our meetings. Artists like Bradley Schenck,

**You can
always tell a
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Stephen Menzies, Mark Smith, Louis Markoya and many more have joined, so a lot of experience and knowledge is available to our members." This is, after all, what a Special Interest Group is all about.

"There are also up-and-coming artists who deserve mention, like Tim Wilson from Crestline, CA. Tim's pieces are mind-blowers - so clean and expressive, with great attention to detail. I receive demos from many of our members and I am never disappointed. Often, beginners feel that their work is not perfect nor worthy of submission to the group. But I feel that it's not a matter of perfection. I know how difficult it is to create, and every piece I receive is as beautiful as the artist themselves. So I try to encourage people to continue to send in their works."

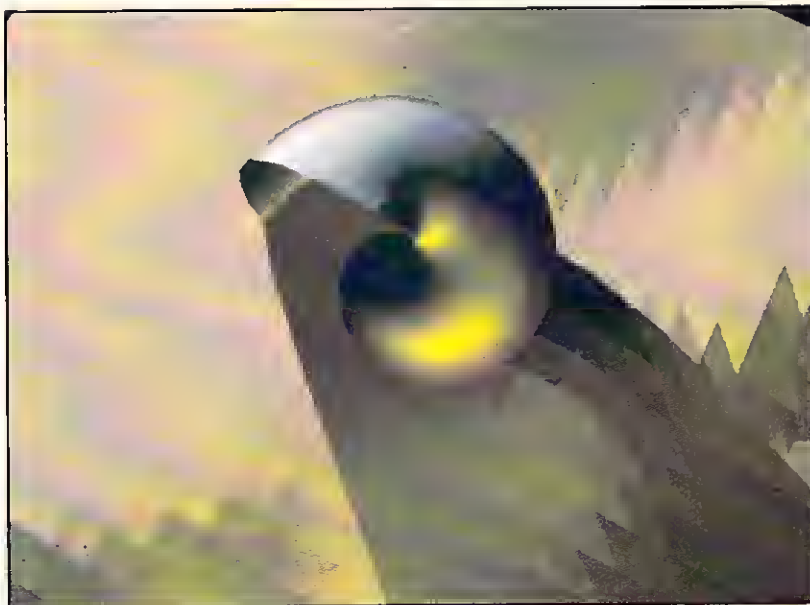
Osaka is quick to point out that, though the *Turbo* SIG only meets in Southern California, this should not discourage anyone from joining. He produces and mails out hundreds of copies of an excellent monthly newsletter. Victor describes it like this: "It's the '*Turbo* SIG Bulletin' and currently is an eight-page monthly filled with images, articles, tips and reviews. These are mailed to registered members of the group. It's black and white now, but in the future I hope to go to color and expand the size. A feature article in issue No. 9 was about the legal aspects of combining photographic images and computers; a very interesting article which I hope will get our members to think about the ramifications of the power available to all of us. One of my latest projects is the gathering together of women artists who work with the computer in 3D programs (on any platform, with any program). I ask anyone out there who is or knows of any such women 3D artists to write to me."

TURBO SILVER

Osaka on his chosen 3D program: "Since I started with Amiga 3D, I've experienced many 3D programs and the bottom line is that *Turbo Silver* is still the best 3D renderer for the Amiga at any cost. If that bottom line is the final image or animation then *Turbo* wins hands down. *Imagine* will retain all of the important features of *Turbo Silver* but has a superior graphic interface. And that will take *Imagine* far into the lead of all programs available to Amiga owners."

Unsatisfied with *Turbo Silver*'s documentation, and knowing the contortions a novice might go through to learn a program as complicated as Silver, Osaka has written a tutorial book titled 'A Beginner's Journey in Turbo Silver.' "It's being well received and that makes me happy," he says. "The feature most people like about the book is the chapter on lighting scenes. It's quite detailed, with two basic lighting setups for nearly all images. The comments I get most often are that the book is very clear and easy to follow. I have not advertised it, so quantities are small but that allows me to continue to sell it directly to the user, and for now that is good."

"I am always an artist, a creative personality," Victor concludes. "I try to spread the news of the *Turbo* SIG, *Turbo Silver*, and 3D computer graphics in general by giving talks and demonstrations to local orga-



Seashell2 © Victor Osaka 1990

nizations and small companies. I gave a talk at the Jet Propulsion Laboratories (Pasadena, CA) computer group earlier this year then at the International Interactive Communication Society among many others.

"I'm hoping to interest the members of the Industrial Designers Society of America in the Amiga as a product development and presentation tool. I believe that as more professionals begin to use the Amiga we'll see more powerful Amiga models and more powerful programs at reasonable prices. The hallmark of Amiga programs is the price vs. performance ratio. One can only wait and see if companies are going to artificially jack up their prices or keep them at a level that anyone can afford. *Turbo Silver* is a prime example of 'bang for the buck.' I've seen it at a dealer for an incredible \$79.00! Is that outrageous, or what! Even the CompuGraphic fonts for *Professional Page* are inexpensive - you would pay 10 times the amount for Mac type. I really love this computer."

Victor Osaka may be shy, but he exudes unbridled enthusiasm for the Amiga and the artists who have been drawn to it.

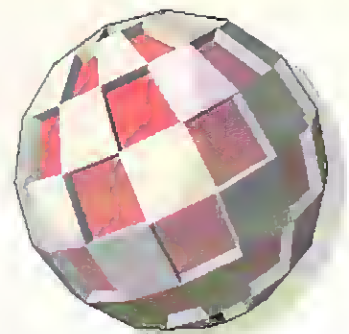


The *Turbo* SIG is not affiliated with Impulse, Inc.

If you're interested in becoming a member of the *Turbo* SIG, whether or not you can attend the meetings makes no difference. Membership to the group is \$12.00 U.S. per year and this entitles you to twelve mailed issues of the *Turbo* SIG bulletin newsletter and the opportunity to purchase the group's object disks, distribution disks, video seminars, and publications. Victor's book, *A Beginner's Journey in Turbo Silver*, is available for \$18.95 plus \$2.00 shipping. For SIG membership or the book, send a check or money order to Victor Osaka, 1341 Ocean Ave. #349, Santa Monica CA 90401.

Turbo Silver
is a prime
example of
'bang for the
buck.'

CyberPlay

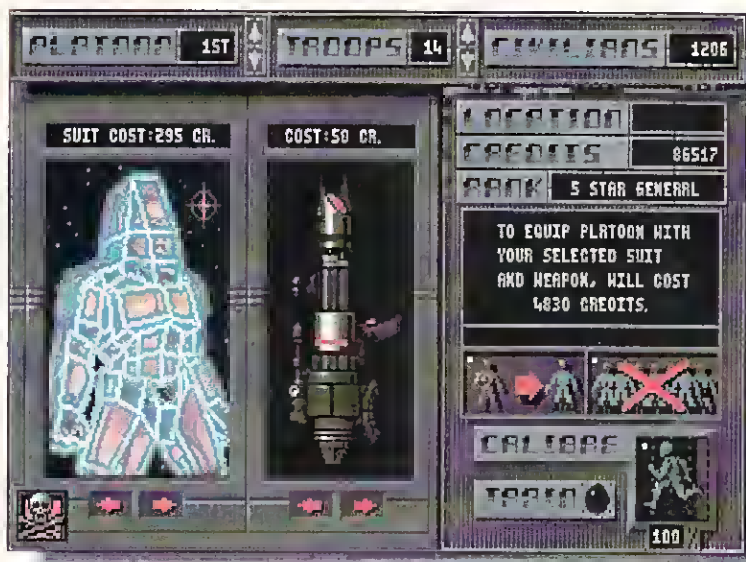


Incredible ★★★★★ Very Good ★★★★ Average ★★★ Awful ★★ Drek ★

I was never much into galactic conquest games like *Empire* and *Imperium*, but *Overlord* has turned me into a ruthless, power-mad planet-grabber. I like taxing the poor little plebeians, drafting them into my armies, and then setting out to take over the empire of someone else just like me. (Am I starting to sound like Julius Caesar?) Actually, *Overlord* is a very sophisticated and streamlined resource management game. You begin on a home planet, where you can buy farming and mining equipment, train armies, and try to keep the population, if not happy, at least cooperative.

The graphics, music, and sound effects are top notch, with little bits of animation to enliven the screens through which you manipulate all the different aspects of your empire. Control is all by point-and-click, with movement around the various screens lightning fast. And it has to be: there's always another overlord coming at you from the other side. The look and feel are what set *Overlord* apart from other games of its genre. It flows easily from one part to the next, and enough of the management process is automated to make learning and playing a breeze.

- Tom Malcom



OVERLORD

Mastertronic, 18001 Cowen Street, Suite A
Irvine, CA 92714, 714-631-1001

Preview



JACK NICKLAUS' UNLIMITED GOLF & COURSE DESIGN

Accolade, 550 South Winchester Boulevard,
San Jose, CA 95128, 408-985-1700

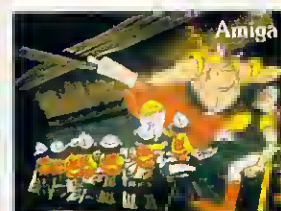


I have been a longtime fan of the now antique *Mean-18*, but *JNUG&CD* (that's a mouthful even as an acronym) has finally replaced it in my affections. Accolade has done a spendiferous job of enhancing, spiffing up, and making this the most playable and versatile golf simulation yet. The graphics are on the high end of the quality scale, though they do betray its generic, multiplatform origin. The sound effects are minimal, but the ones I want are included (I like a cheering crowd when I hole out from 50 yards).

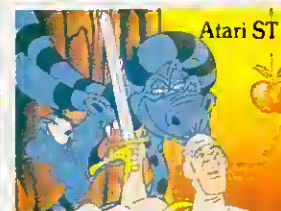
Accolade has been milking this series for cash for a couple of years (I would too) with supplemental course disks, but with this release, they're giving you the ability to create your own. The course editor is extremely well done, though there are a couple of (pun alert!) holes in it: there doesn't seem to be any way to test-play a hole, nor have I found a way to change the somewhat limited, but acceptable, color palette. It is literally a ground-up editor, with control over everything from terrain to trees, and useful enough to design real-world courses. If you're a golfer, don't miss this one - it's the best yet.

- Tom Malcom

DRAGON'S LAIR II



Amiga



Atari ST



IBM PC



Macintosh

Princess Daphne has been spirited away to a wrinkle in time by the evil wizard Mordroc who plans to force her into marriage. Only you, Dirk the Daring, can save her.

Transported by a bumbling old time machine, you begin the rescue mission. But you must hurry, for once the Casket of Doom has opened, Mordroc will place the Death Ring upon Daphne's finger in marriage and she will be lost forever in the Time Warp.

Be the first to play the all new Don Bluth animated adventure! Dragon's Lair II: Time Warp features full-screen animation and digitized sound with more scenes than any previous animated adventure.

"Dragon's Lair II: Time Warp" is a trademark owned by Bluth Group, Ltd.; ©1990 Bluth Group, Ltd.; used under license from Sullivan Bluth Interactive Media, Inc.; Character Designs ©1983 Don Bluth; ©1990 all audio, visuals and concept - Sullivan Bluth Interactive Media, Inc. ALL RIGHTS RESERVED; Programming ©1990 ReadySoft Incorporated.



Miss Scarlet with the Lead Pipe in the Ballroom! Who hasn't shouted that phrase in smug satisfaction at one time or another? *Clue* is yet another much-beloved boardgame brought to the home computer by Virgin, this time with a little more success than some of their other recent boardgame conversions.

The computer version of *Clue* features an expanded cast of characters, a few more locations, and more weapons than the original Parker Brothers edition, but the "look and feel" is definitely *Clue*. Finding enough bodies to play the boardgame is usually a problem, but one that is neatly solved in the computer version: up to nine humans can hone their powers of deduction, or you can play by yourself using computer opponents to round out the cast. Note-taking by computer is handy, too - no more fighting over score paper or finding enough pencils to go around.

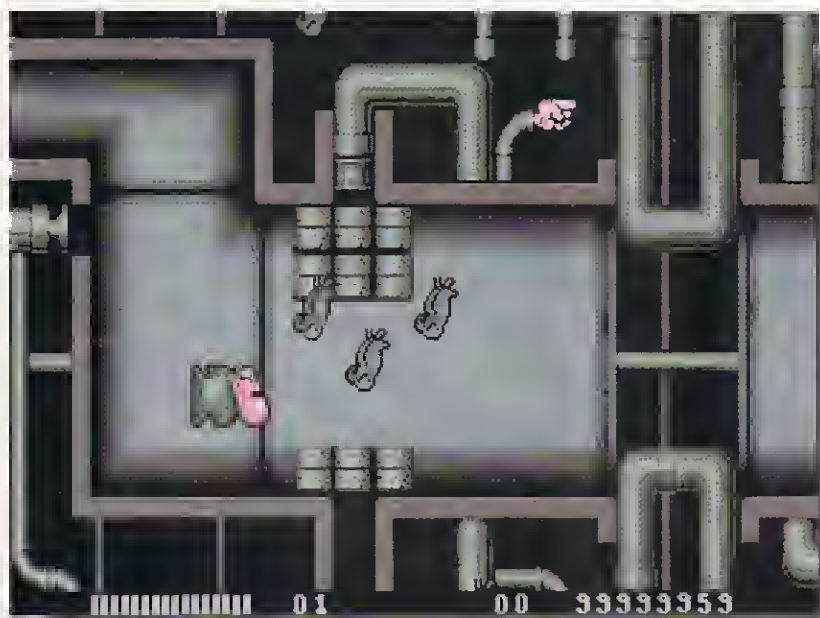
Graphics - which zoom in and out for closeups of the board - are detailed and vibrant, with decent sound effects. So grab your magnifying glass, your pipe, and your Holmes cap, there's a mystery afoot!
- Judith Kilbury-Cobb



CLUE: MASTER DETECTIVE



Virgin/Mastertronic, 18001 Cowen Street, Suite A
Irvine, CA 92714, 714-631-1001



MONTY PYTHON'S FLYING CIRCUS

Virgin U.K., 16 Portland Road
London, W11 4LA England, 44-71-727-8070



Ready for something completely different? Sorry, I couldn't resist, and *Monty Python's Flying Circus: The Computer Game*, is something no Python-nut can resist. The whole thing is a delightful exercise in extreme silliness and is stuffed to the kippers with most of the classic Python bits.

Mr. DP Gumby has lost his mind and he would like it back. A game of "skill and fun," this quest for brains has you scooting through a variety of mazes on four levels searching for pieces of Gumby's gray matter. Collect tins of Spam and pieces of cheese while avoiding dead parrots ("E's not dead, 'e's pining for the fjords!") and flying pigs. The manual, cleverly disguised as a Hungarian Phrase Book (not a word of Hungarian in it, of course) consists of three pages of directions and thirty pages of Python gags.

The arcade gameplay is nothing to write home about, but the hilarity of being inside a Monty Python cartoon more than makes up for it. Graphics, music, and rude sound effects are all 100% authentic Python. A very, very silly game!

- Judith Kilbury-Cobb

DOUBLE DARE YOU.

Blue Max

ACES OF THE GREAT WAR

WWI Air Combat Simulation

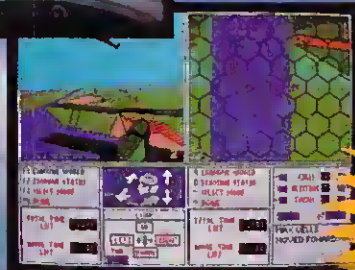
Take control of one of eight classic WWI fighters and find out how good you really are. Fly with the best—Richthofen, Fonck, Mannock, Rickenbacher—and learn their tricks and techniques.

- Action dogfight, solo, and team missions for one or two players using a single computer with any combination of keyboard, joystick, or mouse.
- Strategy Dogfight: For the skilled purist, Blue Max acts like a highly-intelligent strategic board game, allowing you and your opponent to work out detailed battle sequences and play back the moves in "realtime" 3D.
- 8 airplanes to choose from, each with its own highly-detailed flying characteristics.
- Perform missions with, as, or against the Aces of the Great War.
- Dozens of historical missions around 4 different locations within France.

How strong are your nerves at 2,000 feet, with an armed Fokker DR.I on your tail? Forget glory, friend. Think survival.



VGA color
air combat
sequence



• VGA 256
3D COLOR GRAPHICS,
• ORIGINAL MUSIC,
SOUND EFFECTS FOR GAME
BLASTER, ADLIB
SYNTHESIZER
CARDS

DAS BOOT

GERMAN U-BOAT SIMULATION

Winter, 1941. The icy waters of the North Atlantic. The deeper you dive, the greater the pressure. Depth charges explode around you, banging on the hull of your U-boat like iron fists. Nerve and cunning make you the terror of the Allied convoys.

- 3D submarine warfare: For the first time, a sub warfare game lets you deal with threats below and above the surface in a true three dimensional environment.
- Real communications: Use the German Enigma coding machine to send and receive information.
- Many missions to choose from—in'to the North Atlantic and Arctic, inland along the coast of Norway, into the Bay of Biscay, and through the Straits of Gibraltar.
- 3 different levels of difficulty, from beginner to realistic.
- 3D graphics in 256 VGA colors, with multiple internal and external camera views in a complete 3D world.

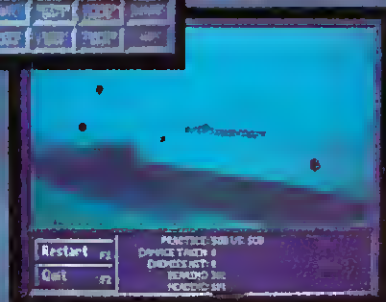
Circle #102 on the Reader Service Card

Do you think well under pressure? How about 300 pounds per square inch of pressure? Take a deep breath, captain....



VGA periscope
view of enemy
aircraft

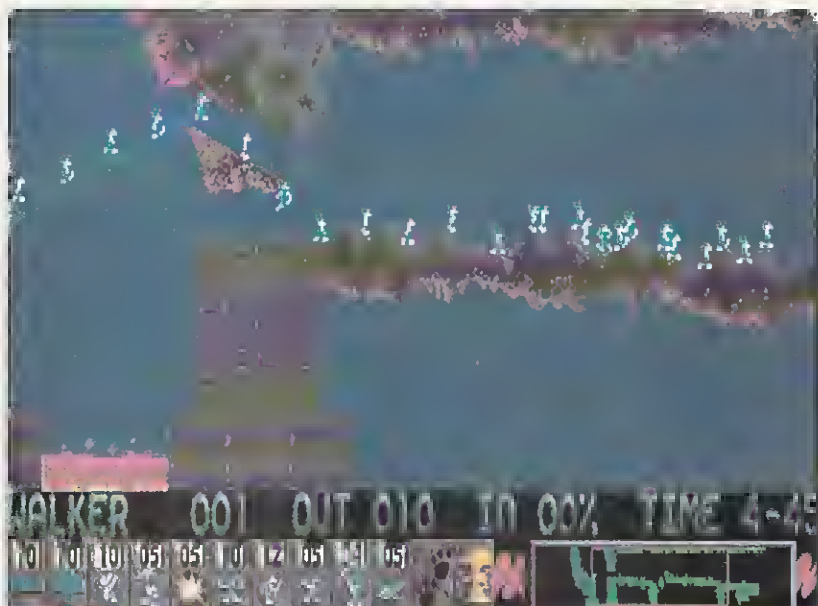
VGA 256 color
mine field
under North
Atlantic



THREE-SIDED PAPER,
35 S. BASELINE
CAMPBELL, CA 95008
408-879-9144

FIVE HOT NEW GAMES FROM

Psygnosis, 29 Saint Mary's Court
Brookline, MA 02146, 617-731-3553



LEMMINGS

Preview



AWESOME



When it rains, it pours - and it does quite a bit of both (as Tom recently had the chance to find out) in Merry Olde England, which is probably why those intrepid Psygnosis programmers and artists have the time to create all their marvelous games! (And more are coming! They must not sleep, let alone go outside for fresh air and frisbee.) We couldn't bring ourselves to pick only a few of these hot new Psygnosis titles to review in *Cyberplay* this issue, so we decided to do as the Brits do and say "What the bloody 'ell!" and just review them all!

LEMMINGS

Preview

The most original arcade game I've seen in ages, *Lemmings* is a radical departure from Psygnosis' usual. It's very cute, very funny, and a joy to play. You try to save lemmings from going over cliffs (and from other gruesome forms of mass suicide) and guide them to an exit. You do this by giving certain qualities to an individual lemming, turning it into such things as a bridge builder, digger, tunneler, and the like. The interface is icon-based point-and-click. The graphics are adorable, the sound perfect (the lemmings even splat when they fall off a cliff). Don't miss it!

- TM

AWESOME



If it had come into the *.info* offices a week earlier, *Awesome* would most likely have been at the top of the list as Game of the Year in the December issue. (Still, the #1 game was another from Psygnosis, so I suppose it doesn't make much difference.) Developed in parallel with *Ballistik* and *Beasts I & II* (by the same team), *Awesome* is, in my book, the best shoot-em-up arcade game yet.

There are several sections to each level, and they are unusual in that they switch view-points. The first two segments are flat, multidirectional, fast-scrolling screens with lots of things to blast. The third is the one that blew my socks across the room: your ship suddenly tilts and starts flying headlong into a starfield, where you have to get past a long dragon

PSYGNOSIS



guarding the planet you need to land on. The next section goes to an overhead view and from there you enter an underground scene. *Awesome* is a mammoth game, and Psygnosis has made it very accessible, with the first few sections easy to get through. The graphics, animation, music, and sound effects are, as we've come to expect from Psygnosis, state of the art. *Awesome* certainly is. - TM

SPELLBOUND



A platform-and-elevators type arcade adventure, *Spellbound* casts you as an elf (or pair of elves) in search of his kidnaped mentor. The jewel-tone, too-cute graphics and speedy animation are up to Psygnosis' high standards, but the gameplay and sound effects are a little below Psygnosis-par. To get very far through the eight levels requires two players to work in cooperation, so plan on teaming up with a friend or juggling joysticks by yourself. *Spellbound* is a pleasant diversion, but somewhat less than spell-binding. - JKC



NITRO



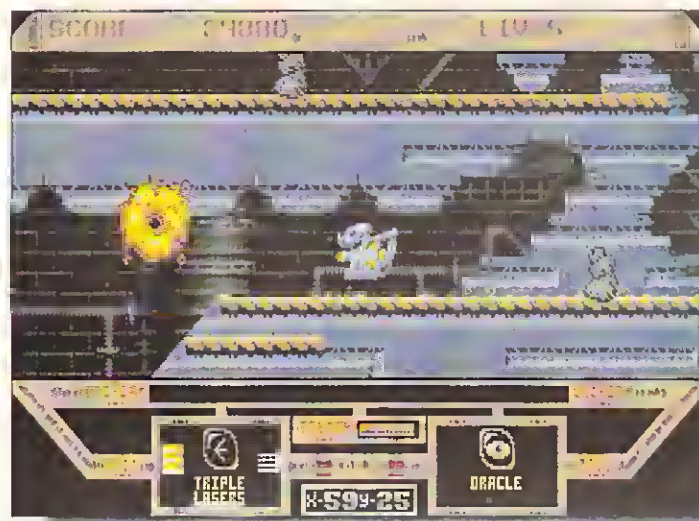
With something of the flavor of *Turbo*, *Nitro* puts you in a futuristic overhead-view car race, where the only rule is to survive long enough to win. And that survival isn't easy - your opponents, human or computer, are not nice people. Up to three people can race (one on keyboard and two on joysticks), and the cars can be enhanced in various ways. What I like best, though, is getting extra points for running down pedestrians. (My favorite bumper sticker reads, "So many pedestrians, so little time.") Not one of Psygnosis' best efforts, *Nitro* is still a decent racing game. - TM



THE KILLING GAME SHOW



Sort of a variation on *The Running Man* theme, *The Killing Game Show* demonstrates why Psygnosis is the master of the platform arcade game. *KGS* combines tasty graphics, frantic gameplay, and killer stereo sound in a post-apocalyptic "game show" where the wheel of fortune is out to run you over and you can't make a deal to get out alive. A handy replay option will let you review the last level so you can spot your mistakes. One of the most playable (but still tough) Psygnosis titles to date. - JKC



CyberPlay



SPIRIT OF EXCALIBUR

Preview

Mastertronic, 18001 Cowen Street, Suite A
Irvine, CA 92714, 714-631-1001

Beginning shortly after the death of King Arthur, *Spirit of Excalibur* casts you as his heir, Lord Constantine. The kingdom is in turmoil, with rebellious lords all over the place, and your task is to reunite England under your rule. The graphics are stunning; I found myself going back to various locations just to look at them again. There are battles with other knights and armies, of course, but there are also elements of strategy and magic. Above all, *Spirit of Excalibur* is true to the period and it looks like one of the best Arthurian legend games.

- TM



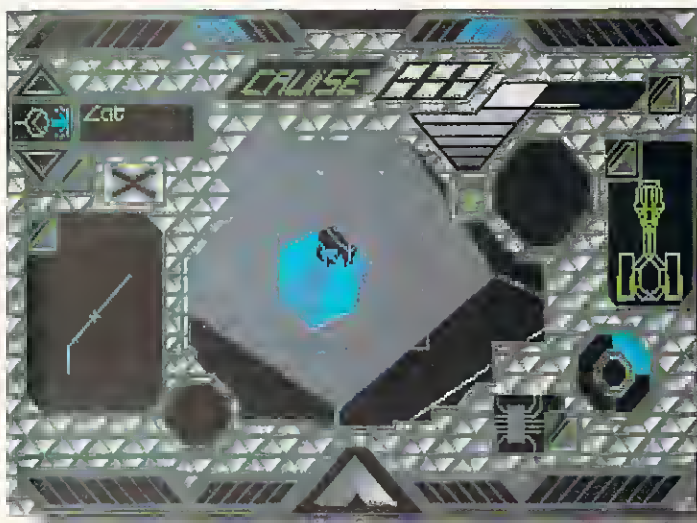
THUNDERSTRIKE

★★★★+

Live Studios, 30151 Branding Iron Road
San Juan Capistrano, CA 92675, 714-661-8337

The second game from Live Studios, *ThunderStrike* is one of the more unusual flight games I've seen. It shows a view of your aircraft as it would be seen from a chase plane with a TV camera, which is actually the plot: you're competing in televised military olympics and the view is what the audience sees. You have to defend ground installations from saboteur drones and destroy the generators that create them. The game boasts some of the fastest vector graphics I've seen. If you like computer flight, but not the complicated controls many simulators have, take a look at *ThunderStrike*.

- TM



MAGIC FLY

★★★★+

Electronic Arts, 1820 Gateway Drive
San Mateo, CA 94404, 415-571-7171

Inviting comparison to California Dreams' *Tunnels of Armageddon*, *Magic Fly* doesn't have the same stomach-churning speed of flight, but it more than makes up for that in the depth of play, compulsive involvement, and an elaborate array of weaponry and controls. A British import, the game has you flying through a complex series of tunnels trying to destroy the inevitable enemy. The vector graphic display can be toggled between solid and wireframe, the control panel can be switched off to make it full-screen, and your viewpoint can be changed to look behind you. Fine stuff; I'll be spending a lot more time with this one.

- TM

INDIANAPOLIS 500



Electronic Arts, 1820 Gateway Drive
San Mateo, CA 94404, 415-571-7171

It was only a matter of time until someone released a game based on the most famous car race of all. This simulation is done with vector graphics, and well done vector graphics at that. The problem with *Indianapolis 500* is that the steering is very touchy. I've never driven a real formula car, but it has to be easier than this. On the other hand, I had great fun causing deliberate crashes - try going the wrong way on the track. Despite the problems I had with it, fans of racing games will certainly get a kick out of this game.

- TM



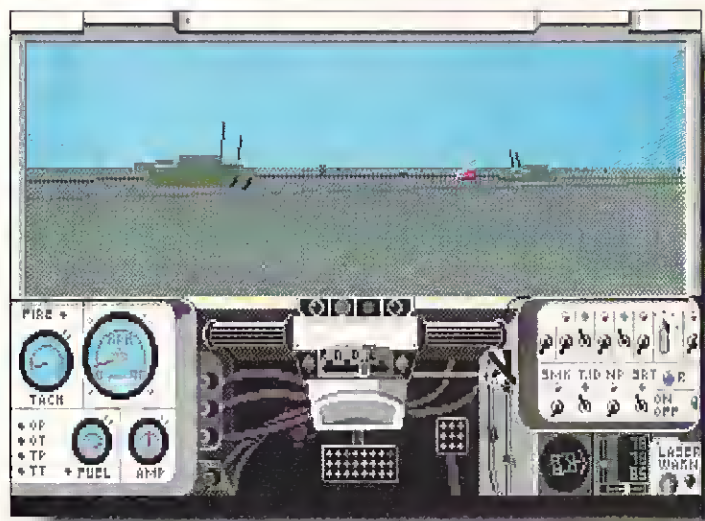
M1 TANK PLATOON



Microprose, 180 Lakefront Drive
Hunt Valley, MD 21030, 301-771-1151

Detail is everything in simulations and *M1 Tank Platoon* has it right down to the squeak of the treads. Even though I'm getting tired of military simulations, I found myself fascinated not only with driving around in one of these monsters, but also with the strategy involved in commanding the other three tanks in the platoon. The vector graphics are about par with what we're seeing these days, but I do think the game would be better if they were less PC-style dithered and more Amiga-style detailed. Fine stuff, though, for fans of the genre.

- TM



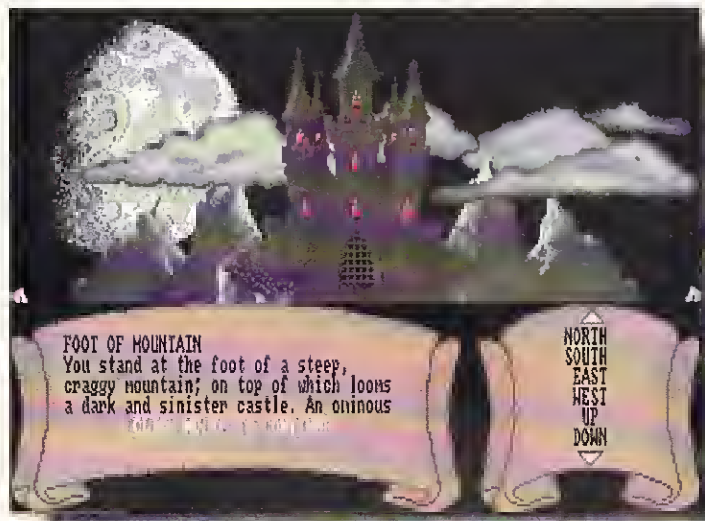
AMOS: THE CREATOR



Mandarin Software, Europa House, Adlington Park
Adlington, Macclesfield, Cheshire, SK10 4NP, England

AMOS, by Francois Lionet, is an Atari ST port-up of an enhanced BASIC language developed with games creation in mind. It is selling like your proverbial hotcrepes across the pond, and with good reason. With *AMOS* you can do some pretty keen stuff, such as creating and animating hardware and software sprites, assembling multi-level parallax scrolling screens in HAM and halfbrite, and adding music samples. The list of features is impressive: there are many more goodies too numerous to mention. A few problems with NTSC-PAL incompatibility are bothersome but not fatal.

- JKC





COMING SOON

The following games have been announced by the game companies listed. Games that had been received in our offices at presstime have been marked with an asterisk (*).

Accolade: *Elvira - Mistress of the Dark, Stratego, Search for the King, Altered Destiny, Jack Nicklaus Unlimited Golf**

Broderbund: *WolfPack, Stunts*

Data East: *ABC's Monday Night Football, The Dream Team, Full Metal Planet*

Disney: *Arachnophobia, Dick Tracy*

Electronic Arts: *Magic Fly*, Chuck Yeager's Advanced Flight Trainer 2.0, Block Racer, AD&D Pool of Radiance (SSI), AD&D Curse of the Azure Bonds (SSI), Buck Rogers: Countdown to Doomsday (SSI), The Secret of Monkey Island (Lucasfilm), TV Sports Football II (Cinemaware), Dragon Lord (Spotlight), Arcade Fever Action Pak (Spotlight), Nightbreed (Ocean), The Untouchables (Ocean), The Lost Patrol (Ocean), Billy the Kid (Ocean), Battle Command (Ocean), B.A.T. (UbiSoft), Powermonger (Bullfrog), Pick 'N Pile (UbiSoft), Night Hunter* (UbiSoft)*

Electronic Zoo: *Xiphos, Black Gold, Spherical, Berlin 1948, Kahlaan, Treasure Trap*

Hewson (U.K.): *Future Basketball**

Innerprisc: *Time Guardian, Aviators, Sword of Sodan II, The Entity (working title), Apprentice* (Rainbow Arts)*

Interplay: *Checkmate*, Lord of the Rings*

Intracorp: *Bill & Ted's Excellent Adventure*

Karmasoft: *Power Pinball**

Koci: *Nobunaga's Ambition**

Konami: *Super C, Kings of the Beach*

Live Studios: *Thunder Strike**

Mastertronic: *Clue*, Wonderland, Spot, Spirit of Excalibur*, Super Off Road, Overlord*

Microprose: *F-19, F-15 II, Railroad Tycoon, Amazing Spiderman, Megatraveller: The Zhodani Conspiracy*

Psygnosis: *Beast II*, Matrix Marauders*, Anarchy*, Lemmings, Obitus, Aquaventura, The Keep, Fire Stone, Turbo Buggies, Carthage, Planet Busters, Barbarian II, Gore, Awesome*, Puggsy, Nitro**

Readysoft: *Wrath of the Demon, Dragon's Lair II: Time Warp*

Sierra: *A-10 Tank Killer (Dynamix)*

Software Toolworks: *Loopz (Mindscape)*

Spectrum Holobyte: *Vette!, Stunt Driver, Flight of the Intruder, Tank*

Stratagem: *Terran Envoy**

Taito: *Castle Master, Day of the Pharaoh, Kiwi Kraze (formerly titled New Zealand Story), Operation Thunderbolt, Puznic*

Three-Sixty: *Harpoon*, Mega Fortress, The Blue Max*

GAME TIPS

Here are some secret "side doors" and "back doors" to your favorite Amiga games, discovered by .info readers.

Roadblasters: *When your at the starting line, type LAVILLASTRANGIATO, then: X - Spins car, S - Next stage, P - Refuel, G - End game, 1 - Mount UZ cannon, 2 - Cruise missiles, 3 - Electro shields, 4 - Nitro injectors, 0 - Remove all weapons*

Kiwi Kraze: *Pause the game, then press M. You should hear a laser gun sound. Type MOTH-ERF**KENKIWIB**TARD and unlimited lives will be yours.*

The following super-keen game tips were sent in by .infomaniac Mark Magdamit

Enlightenment: *To find secret levels at the start of the game immediately go left to the desert, then continue left to the fire zone. Head to the uppermost left corner of this area and you should see lava with a patch on it that looks like a section of the Firewall spell. As quickly as you can, walk on this patch and you'll be whisked away to secret levels.*

The Plague: *Load the game and on the intro*

screen hold the left mouse button down and press the joystick button to begin the game. Keep holding the mouse button down until your game begins and you should see your power meter at 9.

Carrier Command: *A little bit of game playing weirdness here. While playing the game hit the ESC key. The Amiga's power light will turn off. Hitting ESC again will turn it back on. Strange, huh?*

Fire Power: *You can pause the action by pressing 4 on the numeric keypad or by pressing the ESC key.*

The Three Stooges: *If your hand is too fast, go to the poking game. Face Curly and press the button while holding up and left. This will result in Curly's ear continually being pulled until the time runs out and having the slowest hand possible.*

Batman The Caped Crusader: *It doesn't say in the instructions, but you can pause the action on the game screen by pressing the CAPS LOCK key. Unpause the game by pressing it again.*

Share your "secret tricks" with .info readers! Send to: .info Game Tips, 705 Highway 1 West, Iowa City, IA 52246

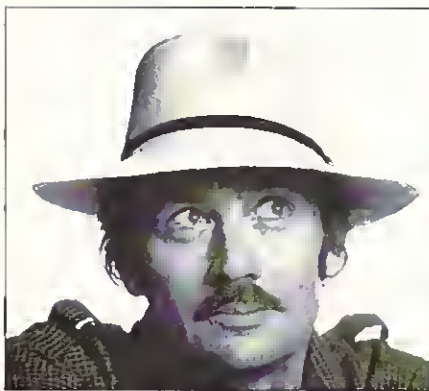


photo by Tom Ives

Pointing And Clicking The Night Away

In LucasFilm's best and biggest adventure yet, *The Secret of Monkey Island*, Ron Gilbert spirits us off to a wacky version of Treasure Island. Your character is Guybrush Threepwood, a young lad determined to become a pirate. In the first section of this three-stage affair, he arrives at Melee Island and meets a trio of pirate captains who challenge him to prove his worthiness by proving his prowess at swordsmanship, thievery and "the quest" (tracking down treasure).

Upon completing this goal, which could make a game in itself, you return to town and discover the governor has been kidnapped by LeChuck, the ghost of an evil pirate, and is being held hostage on Monkey Island. Your goal in this phase is to collect a crew, find a ship and sail to the Isle of Monkeys, where the third section of the quest defies you to rescue the governor and return her.

One of the smoothest "point and click" interfaces around was enhanced to use both mouse buttons. When you move the cursor over an interactive object in the picture, the verb you're most likely to use with it will light up. Then you can click the right button to activate that verb; the left button executes an automatic "walk to" the item.

The story is crammed with a variety of wild and weird humor expressed in events, dialogue, and prose, and the puzzles are fresh and stimulating. Unlike quests from Sierra and Interplay, this one rarely kills you for making a mistake - if you die at all on Monkey Island, it will probably be from laughing so hard.

If you *do* enjoy getting killed a lot, try *The Immortal*, a fast-paced, one-megabyte

Shay Addams' Adventure Road



The Immortal

role-playing affair by Will Harvey of *Zany Golf* fame. You're on a quest to rescue Mor-damir, a missing magician, and will explore eight levels of 3D mazes while fighting monsters and solving a few clever puzzles. (Incidentally, the cover art on the box looks remarkably like Gary Gygax, one of the creators of the original pencil and paper *Dungeons and Dragons* game. Of all the titles in this month's column, *The Immortal* is the only one that was written for the Amiga, not the IBM, first. The odd thing about this is that it was not written in Europe, like most Amiga-first titles such as Interplay's follow-ups to *Future Wars*.

The Interplay titles *James Bond: Operation Stealth* and *Cruising for a Corpse* are not story sequels to the time travel story *Future Wars*, but technological sequels that employ essentially the same interface and style of art. They feature the finest graphics in an animated quest, and their variation on the "point and click" interface works well in most cases. The only thing I don't like about these games is the way they attempt to reinforce a sense of depth by making you get close to objects in the picture before the program will let you use them: "Try getting closer" was the message I got hundreds of times while playing *Future Wars*. "Try getting smarter," I finally yelled back.

Crime Pays

Access Software finally caved in and started doing Amiga conversions of their animated adventures. They all have mystery/crime themes, but I'd stick with *Countdown*, since the first two suffered from attempts to graft a simulator (*Crime Wave*) and a shoot-'em-up (*Mean Streets*) to 3D quests. In *Countdown*, you're a CIA agent who must escape a mental asylum and hopscotch across the Mideast to nail a band of terrorists.

Unlike other animated stories, it employs digitized videos of actors, rather than computer animation, for some characters. Their expressions and movements make the Access games the very best in terms of graphics. *Countdown* suffers from the weakest "no typing" interface, though, and your puzzle-solving efforts are often hampered as you attempt to manipulate objects in ways the program won't allow.



Unfortunately, this is Shay's last column for *.info*. But if you would like to continue reading his insights into adventure gaming, be sure to subscribe to his highly-respected monthly newsletter, *Questbusters*. It is \$18/yr, \$24 Canadian, \$32 Int'l, from: PO Box 5845, Tucson AZ 85703.

3D & Animation

John Foust

on



© 1990 Pixar

A 24-bit still from the award-winning *Renderman* animation *TinToy*.

This month
John reports
news from
SIGGRAPH;
discovers a new
3D program
called *Draw4D*;
and dispels
rumors about
an Amiga
version of
Renderman.

Sadly, this is my last 3D column for *.info*. As I warned in my introductory column, I want to avoid conflicts of interest by refraining from reviewing and rating 3D products. To better serve its readers, *.info* needs a 3D columnist who can do that. I step aside and pass along the 3D duties to graphics columnist Brad Schenck. But I'll be back with occasional special feature articles, so Watch This Space.

SIGGRAPH is the convention for the Association for Computing Machinery's special interest group on computer graphics. It's a two-faced conference aimed at the upper echelon of computer graphics wizards. One face is the innumerable academic classes and lectures given by the high priests of graphics techniques; the other face is the commercial trade show floor where companies demonstrate their latest.

In the past few years, micro and workstation graphics have overshadowed the powerful mainframes of the Seventies and Eighties. Commodore had its own

booth, packed with demonstrations of Commodore's own pet projects plus the wares of third-party Amiga developers. Most interesting from a 3D standpoint was Hash Enterprises' *Animation: Journeyman*, the long-awaited big brother to *Animation: Apprentice*. It is the first to break away from polygon-based modeling. Instead, it uses flexible, highly-controllable spline surfaces. It also retains *Apprentice*'s unique skeleton and muscle paradigm for choreographing object motions. It is priced at \$500 and is only available direct from Hash Enterprises. A charitable upgrade is available.

Impulse showed *Imagine*, the follow-up to their immensely popular *Turbo Silver* raytracer. It sports a new user interface plus new features such as Boolean operations to subtract and merge parts of objects. It was driving their new *Firecracker* 24-bit framebuffer. Like too many products, it was suffering from "Real Soon Now," but a recent Impulse mailing reassured owners that it should ship well before you read this.

THE VIDEO TOASTER

NewTek had their own booth at SIGGRAPH, apart from the Commodore booth. After a weekend playing with a *Toaster*, I've come to a few conclusions. First, NewTek is joined in a secret conspiracy with the Japanese. The *Toaster* makes you want to buy a \$2000 video camera, a \$2000 time base corrector, a \$5000 videotape recorder, and a \$1500 laser disc player for grabbing frames. Second, the *Toaster* will do for video editing what shiny spheres and checkered surfaces did for 3D modeling. Its magic wipes, fades, and dissolves will work miracles in a skilled editor's hands, but plenty of unskilled video people will over-use its effects. Unless you've got thousands invested in video equipment, you can't take full advantage of these functions. Third, the *Toaster* is worth its \$1600 price for *LightWave 3D*, *Toaster-Paint*, and its framegrabbing and frame-displaying abilities alone.

To reconcile my video urge and credit card limits, I plan to investigate the local cable access channel. In most cities, as part of the terms of the monopoly granted to a cable TV company, there must be public access to video production facilities. These broadcast facilities are notoriously under-used. I can't help but think these stations would be great platforms for promoting the Amiga. Sure, few people watch these stations. On the other hand, it's a place to work with thousands of dollars of video equipment in a real-world environment.

DRAW 4D

During a seemingly ordinary technical support call, a customer asked if we supported the *Draw4D* format. I said, you must mean *Aegis Draw*; No, *Draw4D*, he said, it's made by a company in Ohio. As it turns out, I don't feel so bad. *Draw4D* wasn't released or even announced to the public. The customer was a beta tester, and assumed I'd heard about it.

One of the little pleasures in life at Syndesis is finding out about a new 3D product when customers start calling to ask if we're going to support the format in the *InterChange* system. It puts us in a funny position: 3D products come and go. Some never ship, some ship a few copies then disappear. If we had invested any time and effort in making *InterChange* modules for those formats, we would have seen very little return on our investment. So we research the file format, investigate what it would take to code a module for it, then wait to see if it becomes popular. If sales are strong, we develop an *InterChange* module.

Back to *Draw4D*. It comes from Adspec Programming of Salem, Ohio, and sells for \$249. It's a 3D modeling and animation program with a smart twist, considering the most popular functions of an Amiga. It emphasizes both video and desktop publishing output. Aside from making ANIMs and simple-shaded single frame animations, it also saves *Professional Draw* clip art. [Look for a full review of *Draw4D* by Brad Schenck in an upcoming *Graphics* column. -Ed.]

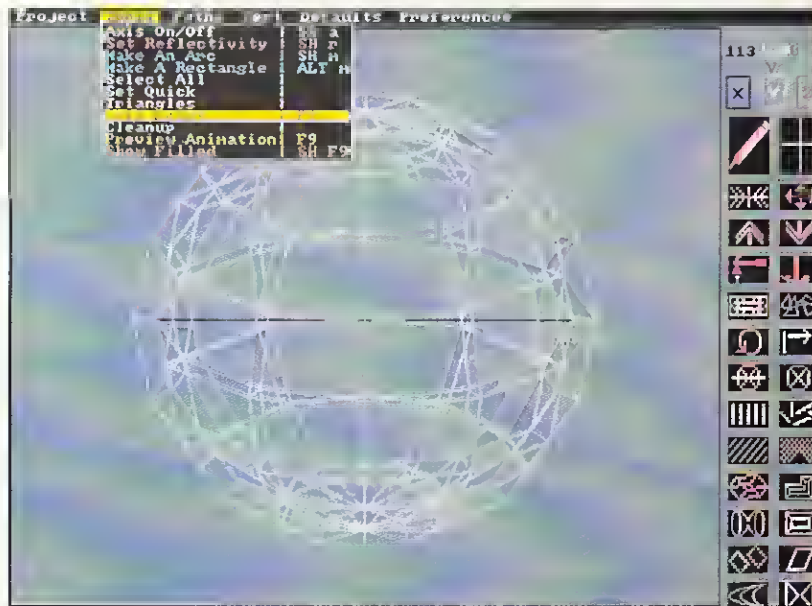
THE RENDERMAN COMETH?

Recently, rumors surfaced that *Renderman* would be ported to the Amiga. *Renderman* is a high-end rendering system developed by graphics giant Pixar, the people who made the "Luxo," "Red's Dream," and "Tin Toy" animations that you might have seen over the past few years. *Renderman* is to 3D what PostScript is to desktop publishing. It's a language for describing photo-realistic scenes of 3D objects. There's also a *Renderman* rendering program sold by Pixar, the people who developed the language.

I heard two independent streams of rumor-noise: One originated at SIGGRAPH, the other from *AmigaWorld*'s rumor section. At SIGGRAPH, I heard that two Commodore muckity-mucks met with Pixar to discuss porting the program to the Amiga. Next, *AmigaWorld* said a company called Lake Forest Logic was porting *Renderman* to the Amiga.

I talked about *Renderman* with Dennis Adams of Point Line Graphics. Adam's title is listed as "Dither-master" on his business card, so it's obvious he's into computer graphics.

Adams has an interesting perspective on *Renderman*: "Some people think it's going to be like *Wordstar*: they install it and start making beautiful pictures. But some machines won't be able to handle it. It is very demanding of your hardware and your artistic skills. A wordprocessor doesn't make you write beautiful prose. *Renderman* alone won't make you create beautiful pictures." What does "demanding" mean? One of Adam's admittedly complex scenes takes more than 90 hours to complete - on a single-tasking,



Draw 4D from Adspec offers 3D animation and structured drawing in one package.

souped-up, very expensive PC.

Keep in mind that the current PC implementation of *Renderman* isn't a raytracer. Instead, it uses Z-buffer techniques. In its eight megs of RAM, it implements virtual memory using a DOS extender, meaning you need plenty of free disk space. *Renderman* RIB scene files tend to be large, too, and then there's the disk space taken by 1280 x 1024 pixel color bitmaps.

Renderman has its good points, to be sure. It turns rendering into a commodity product and brings forth a new standard language for described rendered scenes. It's decoupled the 3D modeler from the 3D renderer.

Which brings us back to the first part of the rumor: Lake Forest Logic told me that word slipped out that they were developing a new modeling and rendering program for the Amiga that would produce *Renderman*-compatible files. They also said Pixar seemed interested in an Amiga version of a *Renderman* renderer, too. Neither product is announced yet - but at least we know who to pester and what to brag about.

Several weeks later, I heard a wild-eyed rumor that even *Wavefront* is considering porting its software to the Amiga. I have a hard time believing this, considering the difference in horsepower between the Amiga and their high-end custom hardware.

ADDRESSES

Adspec Programming, PO Box 13, Salem, OH 44460, 216-337-1329

Hash Enterprises, 2800 E. Evergreen Boulevard, Vancouver, WA 98661, 206-573-9427

Lake Forest Logic, 28101 East Ballard Road, Lake Forest IL 60045, 312-816-6666

Impulse Software, 6860 Shingle Creek Parkway, #110, Minneapolis MN 55430, 612-566-0221

NewTek, 215 East 8th Street, Topeka KS 66603, 800-358-3079

Renderman

is to 3D

what

PostScript is

to desktop

publishing.

Brad Schenck on Graphics



Sierpinski Gasket © Bradley W. Schenck 1990

This solid modelled *Turbo Silver* image uses several fractal bitmaps wrapped on three dimensional objects.

Picture this: a large mirrored sphere hangs ominously over an infinite shiny floor of black and white checkered tiles.

Picturing this (or creating it in a 3D modeling environment) doesn't require much imagination. You can picture it in your mind quite easily because you've seen it over and over again, whether the artist responsible used *Sculpt 4D*, *Turbo Silver*, or any other 3D program on up to the big guns of *Alias Animator* and *Wavefront*. It's usually the first image anyone creates with 3D software because scenes like this are slick and effortless to produce.

Even after mastering the software, many artists stick to similar effects. We see a lot of surfaces that look like chrome and vinyl, things that Amiga artist Brummbar once described to me as looking like they're "in the kitchen."

Until recently only Impulse's *Turbo Silver* really allowed the user to use volumetric textures like marble and wood and (even better) flat, 2D images mapped onto objects. Now *3D Professional*, *Imagine*, and Hash Enterprises' *Animation: Journeyman* are all entering the 3D arena with variations of these features.

Brad offers
his advice for
bringing your
3D renderings
"out of the
kitchen."

Using 3D bitmaps mapped onto objects allows you to create a very wide selection of surfaces and effects. In this overview I'd like to recommend some ways to take advantage of that, to help you come up with images that don't look like they belong in anybody's kitchen.

THE TOOLS

The three programs I've mentioned above make different uses of 2D bitmapped graphics. *3D Professional* (Progressive Peripherals & Software) can import an IFF image and create a complex 3D object from it, using polygons of different colors to recreate the picture. These objects are flat and can become very complex, since a low resolution image results in a large number of polygons representing the pixels in the image. *Journeyman* and *Imagine* each offer several different ways to import bitmapped graphics; for example, as 'decals' that are wrapped onto a surface, or as "bump maps," where different colors in the image result in different 'altitudes' in the bump map.

So far unique to *Journeyman* is the ability to import ANIMbrushes, so that an IFF wrap can be animated automatically on an object.

Not having seen *Lightwave 3D* (Allen Hastings' new 3D program, bundled with the *Video Toaster*) yet, I can't comment on it other than to say that it also maps 2D images onto 3D objects.

TYPES OF IMAGES

You have two basic ways to use 2D images on 3D objects. The 'decalling' type involves adding detail or decoration to an object's surface by mapping an IFF image onto it. You'll have seen many examples of this in images and animations created with *Turbo Silver*, such as the shield in my animation "The Sentinel." Typically these decals are painted in 2D programs like *Deluxe Paint*, though they might also be digitized from flat art.

Another use of bitmapped graphics is to create texture effects like marble or other materials. These may be digitized or scanned from real materials, hand painted, or generated with fractal software.

This use of 2D imagery can do much to add to the richness of a 3D picture. Careful application of such bitmapped textures can make your objects far more realistic than any raytracing software's settings for object attributes.

DIGITIZED AND SCANNED IMAGES

Digitized and scanned images aren't any different

from ordinary 2D images from flat art sources, though your choice of source material may be different. Some promising sources are floor tiles, wallpaper sample books, art books, wood "shorts", rocks, and other natural objects.

If you're using a scanner you're more limited in the size of your original objects, but the results may be better than with a video digitizer.

Wood "shorts" are leftovers you may be able to get at a local hardwood supplier or cabinetry shop. There are a wide variety of species available and it's easy to accumulate a visual catalog of them in digitized form. Pale woods like maple and birch may seem less interesting, but often feature dramatic figure like fiddle-back and quilting. More colorful woods like koa, cherry, padauk, and ziricote are readily available and provide very beautiful wood surfaces, with irregularities and types of figure you'll never see in volumetric textures. For best results, make certain that the shorts are sanded smooth; oiling or otherwise finishing them will provide better contrast and color. A quick wipe with a damp sponge can do wonders to bring out the contrast in a piece of bare wood's figure.

For stone textures, you may be able to find usable floor tile samples. Alternately, it's possible to find samples of real marble and other stones through some pavestone and decoration suppliers. With real stone, oiling may again improve the contrast and color of the images.

All sorts of found objects can provide interesting textures, as well. You just need to keep your eyes peeled as you go about your daily business.

FRACTAL PATTERNS

There are several varieties of these. The most familiar are images that represent the Mandelbrot and Julia sets. Other types of fractals produce different types of patterns and textures. I've found that many of these produce very convincing natural-looking textures for objects.

For Mandelbrot and Julia set images you may experiment with programs like Crystal Rose Software's *Analytic Art*, Megagem's *FractalPro*, or the public domain *MandelVroom 2.0* (Fish Disk #215). As good as the commercial programs are, *MandelVroom* remains my favorite; its intuitive interface gives the user very good control over the way colors are mapped into the image. It supports floating point coprocessors as well. *MandelVroom's* main lack is that it doesn't support overscan screen sizes.

Many of these fractal patterns, in an appropriate palette, yield very convincing marble textures, and I've made extensive use of them in my *Turbo Silver* images (do be aware, though, that *Silver* is confused by Extra Halfbright images. If you use these 64-color modes, use an image processing program to convert them to HAM before using them in *Silver*.)

Another very useful public domain program is *Cloud* by Mike Hall (Fish Disk #216). *Cloud* produces fractal patterns that (as you might guess) resemble cloudy skies. Its output is smaller than a screen, but by capturing its screen with a screen grabber like *ScreenX*



A selection of fractal cloud, Mandelbrot, and Julia set pictures, which are all very useful for object textures

(by Steve Tibbett, Fish Disk #158) you can use a paint program to combine different cloud images, resize them, and alter the color palette in all sorts of ways.

Cloud images, like Mandelbrots, produce excellent marble patterns - probably more realistic ones, really. You can take a single source image and manipulate its palette to get a great many variations. 'Squeezing' a cloud image with a brown palette is another easy way to get realistic wood.

SOURCE BOOKS

There are many books of designs and patterns that are useful for this type of texturing. Dover Books is a remarkable source for clip art, fonts, and decorative details. These books are mostly in black and white, but many are also available in color.

Do be careful of using copyrighted material in your images, though. Most of the Dover Books catalog can be reused in your projects with few restrictions, but that's unusual. Flying teapots embossed with Georgia O'Keefe paintings are questionable not only for their taste, but for their legality.

ADDRESSES

Progressive Peripherals & Software, 464 Kalamath Street, Denver CO 80204, 303-825-4144

Impulse Software, 6860 Shingle Creek Parkway, #110, Minneapolis MN 55430, 612-566-0221

Dover Publications, Inc., 180 Varick Street, New York, NY 10014, 212-255-3755

Crystal Rose Software, 109 South Los Robles, Pasadena CA 91101, 818-795-6664

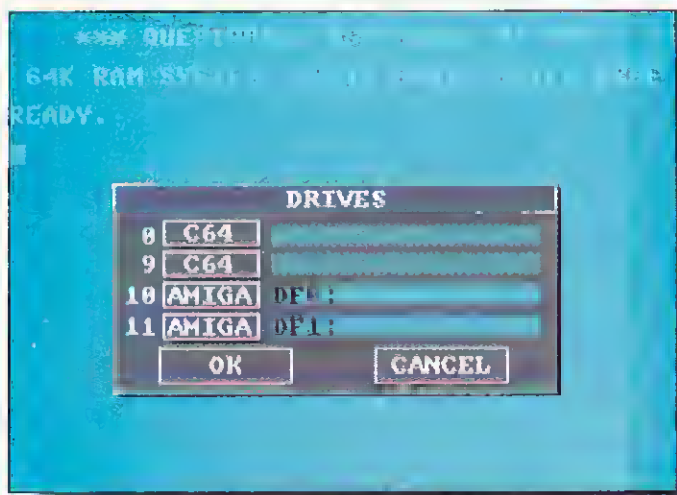
MegageM, 1903 Adria, Santa Maria CA 93454, 805-349-1104

Hash Enterprises, 2800 East Evergreen Boulevard, Vancouver WA 98661, 206-256-8567



All sorts of
found objects
can provide
interesting
textures.

PUBLIC DOMAIN



AMERICAN PEOPLE/LINK

The Amiga Zone and The Amiga Zone Pro are American People/Link's Amiga support sections. Each file's access number is tagged with either "AZ" or "AZPRO" to indicate which section it can be found in. For information on signing up for People/Link, call 800-524-0100.

PCPEZ100.LZH [23548/AZ]

PCP_EZ is a major re-design of a program that was formerly known as *Am_Nix*. It's for navigating BBSes via SprintNet's PCPursuit service. *PCP_EZ* sports an Intuition interface and accounting module, plus it takes advantage of the PCPursuit's 90 second grace period to keep you from being charged for busy signals. This demo version dials only three PCPursuit cities - to get a fully enabled copy, send the shareware fee to the author, Bill Fischer. *PCP_EZ* makes dialing hundreds of BBSes nationwide a snap - no scripts required! You need a SprintNet PCPursuit account.

A64101N.LZH [25209/AZ]

The latest revision of Cliff Dugan's commercial-grade C64 emulator for the Amiga, *A64 V1.01N* (shown) now works with 68010/020/030 accelerator cards (but not yet with the Amiga 3000). A virtually flawless emulation of Amy's 8-bit ancestor helps ease the transition for those C64 owners stepping up to an Amiga who still want to access their C64 programs and files. *A64* recognizes Amiga drives and ports and when you register this shareware program (\$25) Dugan will send you a hardware adapter to allow connection of your 64 peripherals (drives, etc.) to your Amiga.

MAGPAGES-1.LZH [2642/AZPRO]

MAGPAGES-2.LZH [2643/AZPRO]

From New Zealand comes *Magnetic Pages* (shown) by Mark Gladding. Here's a software package that allows you to create and display a disk-based magazine. You can combine text and graphics on a single page, branch to different sections by clicking on icons (the hypermedia concept) and play sound and music. It features a full Intuition-driven interface. These files contain the Editor and Displayer modules, along with a slick tutorial magazine to browse. Pay the shareware fee and you'll be sent the *Organizer* module which you'll need to compile your own creations.

YAHTZC.LZH [24656/AZ]

CANYAHTZCDECK.LZH [2317/AZPRO]

Mike Ford's *YAHTZC* (shown) is the best Amiga interpretation of the classic dice game Yahtzee that I've seen yet. This one is written in CanDo and comes both as a freestanding game, or as a CanDo deck which may be modified and customized by CanDo owners. Excellent playability, "no guessing" score registration, take-back and sort dice embellishments and some nifty sound effects for the rolling dice and high scoring feats. A winner.

- Harv Laser [CBM*HARV]



PUBLIC DOMAIN

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GENie is General Electric's commercial online information service. GENie's *Starship Amiga* software library has over 8000 files available for downloading. For information on signing up for GENie, call 800-638-9636.

NEWTESTAMENTV1.LZH [9340]

GENie's revised support of 2400 baud modems really makes downloading huge files like *NewTestamentV1.LZH* (over 600K, shown) less time-consuming. This particular behemoth contains nothing less than the text to the entire New Testament of the Bible in a useful and easy-to-use package. *Electric New Word* is a CanDo construction by Rich Hughes which imports selected scriptural text files into a snazzy PD text editor (*TEXTRA*) for cutting, pasting, and ultimately saving to disk or printing with *PPMORE*. Great for writing sermons, doing Bible studies, or just using your Amiga to browse the Good News. *TEXTRA* was written by Mike Haas and is fully Amiga Intuition-ized. The *PPTYPE* print utility, written by Nico Francois, automatically paginates text files, skips over perfs, and places the filename at the top of each page. *FULLVIEW*, a nicely done text reader, rounds out *Electric New Word*'s utilities. *ENW* fits on a single disk but can easily be installed on a hard drive. It is something of a memory hog once loaded, requiring at least 350K, with one meg recommended. *Electric New Word* is Charityware: a donation to your favorite charity is requested.

AMIGAQ.ARC [9366]

Remember the old Hi-Q game you used to play as a kid (purchased from your local Junior Achievement rep) where you tried to checker-jump colored golf tees on a Red Cross shaped playfield until only one tee was left standing in the middle? Well, frustration fans, Thomas Paul Shultz has written a tidy little Share-a-Disk-ware (or send \$3) version just for you: *AmigaQ* (shown).

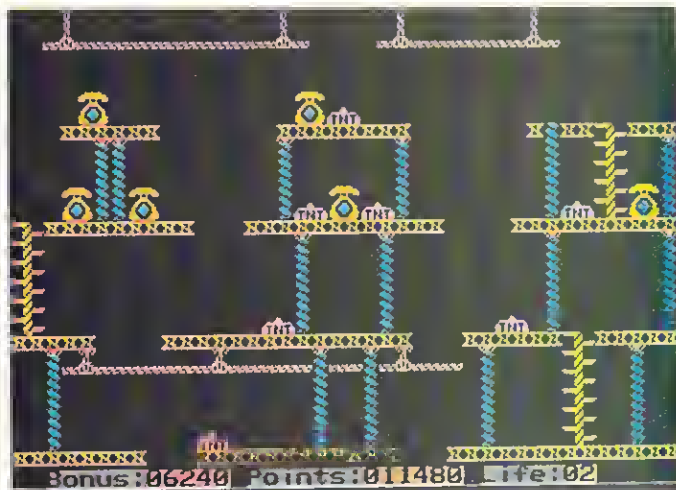
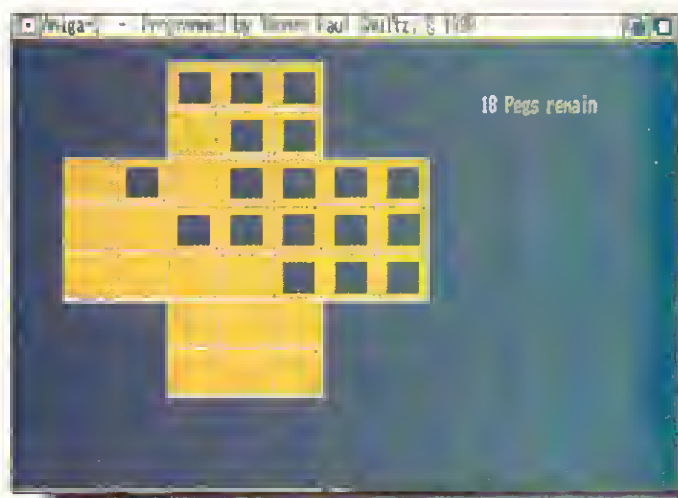
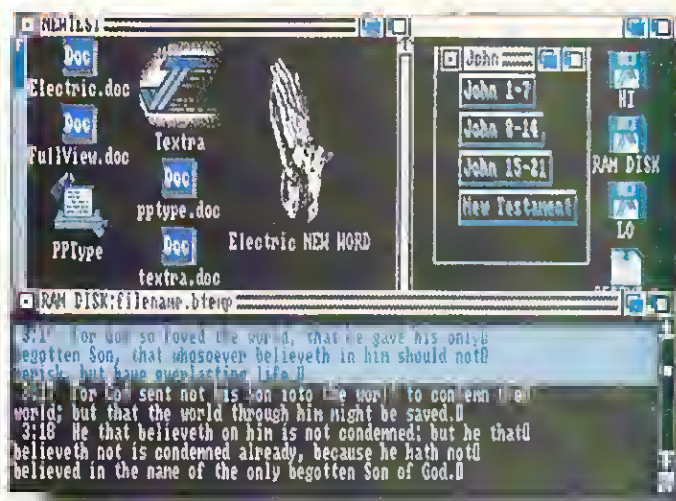
NAKAMOTO.LZH [9303]

Speaking of frustration, *Jumpman* fans will get their juices going with *Nakamoto* (shown), a nicely done Oriental-ish user-editable arcade game guaranteed to test the patience of all who dare try it. At least one screen (I haven't finished them all) had to be edited just to make it solvable! The pesky little China man and fireball are more like Ninja assassins than annoying distractions. And there are 55 levels of this torture to wade through. Being able to change default control keys is a nice touch if key bounce is a problem. Be sure to have your nerf bat handy!

SEUCKUTL.LZH [9383]

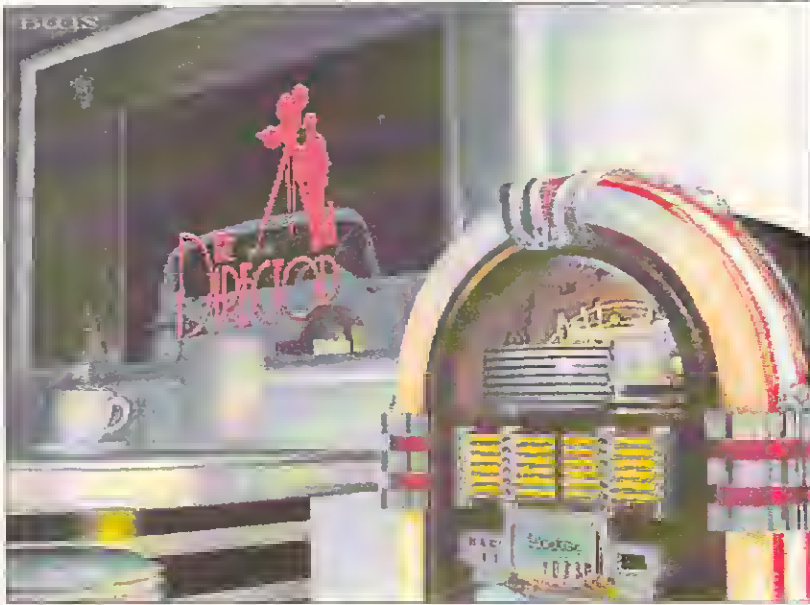
Not a game, but four documented *Shoot'em-Up Construction Kit* (*SEUCK*) CLI utilities written by Brian Conrad make up the contents of the this archive. *SPR2IFF* and *BGD2IFF* convert the .SPR and .BGD files created by *SEUCK*'s simple graphic utility into IFF files that users can load into a real paint program like *Deluxe Paint*. *IFF2SPR* and *IFF2BGD* convert the files back into *SEUCK*'s format after you're done doodling.

- Don Romero



Multimedia

Jim Meyer
on



HAM still from a *The Director II* promotional animation.

Jim takes a
sneak peek at
The Director II,
new from The
Right Answers
Group.

I was all set to write this month's column about "Roll-your-own" multimedia. This is the way I've done things for years. I take various commercial and public domain programs, run them together, and stitch them into a cohesive presentation. The program I rely upon to make this possible is *Director*, from the Right Answers Group. Since I knew Keith Doyle was hard at work on a new version of *Director*, I decided to give him a call to see how it was coming. What he described to me was more than a tuneup. It was a complete overhaul. What follows is a preview of the new *Director*, which should be available by the time you read this.

Director is a programming "environment" - more than just a language - which is specifically tailored to the Amiga's presentation capabilities. Since its introduction in 1987, *Director* has been used in ways never envisioned by its author. Originally designed as a "slideshow / animation / scripting program," *Director* has found wide use as something else - a multimedia tool. *Director II*, the "sequel" to the original program, has been a long time in coming, but it promises to be worth the wait. Here are some of the key enhancements:

EASE OF USE

The old *Director* offered a lot, but it also asked a lot. You had to know something about programming, and you had to be familiar with the CLI. This kept some people away. For one thing, you used to have to write "scripts" for *Director* with a text editor. For most users, this meant wrestling with Ed, the editor that comes with the Amiga. While people versed in CLI had no problem with this, it left the Workbench crowd out in the cold. No more. *Director* now comes with an integral point-and-click editor, one that can be customized by the user. The editor incorporates a number of "programmer-friendly" features, like returning you to the point in a script where an error occurred. Need help with your "IF... ELSE" statements? No problem. Hit a function key, and the editor will block out the IF... ELSE statement for you, leaving you to fill in the details. You can incorporate your favorite tools - like *DiskMaster* - into the editor. You can customize the menus. You can add your own functions to the function keys. When it comes time to compile and run your script, the editor detaches itself and returns all memory.

The commands most often used in *Director* - Wipe, Fade, and Dissolve - used to require a long list of parameters. You had to specify which buffer you were operating from, how much of the screen you wanted to change, etc. No more. It turned out that people did full-screen effects most often, so these commands now default to a full-screen value. This makes certain effects, like slide shows, as simple as typing one word. Should you decide to take advantage of the power of these commands, though, the parameters are still there.

It's much easier to manipulate text in *Director II*. It supports formatted text, and allows you to display this text with a single command. This means that you can embed color changes, font changes, margin changes, right in your text and not worry about having to format it any further. *Director* will take care of all that for you. It also supports proportional fonts and wordwrap, and will perform justification. Not only that, but you can now perform the equivalent of "text merge" with *Director II*. Just specify the text you want to insert, and *Director* will take care of the details.

LANGUAGE ENHANCEMENTS

Although *Director II* is now much easier for the novice to use, it also offers more flexibility for programmers. Thanks to its ARExx port, as well as a new

module format that serves as an interface for C programmers, you can now add new functions to *Director*. If it doesn't do what you want, you can add whatever capability you need. The old limitation of 32K for .film files - the compiled, runtime versions of *Director* scripts - has been raised to 64K. Should this prove to be a limitation, you can now call another *Director* .film from the one you are running. Certain parameters are passed to the new .film - the various buffers, as well as the main array. One use for this feature would be a menu program. If your script allows for menus, you can simply call an external .film to do the menu processing for you, and return to your original .film when the processing is complete.

Programmers will also find the new structure of scripts to their liking. Labels are now allowed, as well as named arrays and multidimensional arrays. New programming constructs include ON... GOTO and REPEAT WHILE statements. The ability to use INCLUDE files - external programs generated by *Director* utilities - greatly simplifies the task of writing a *Director* script. The script segments generated by *Director* utilities appear in the script as a single line.

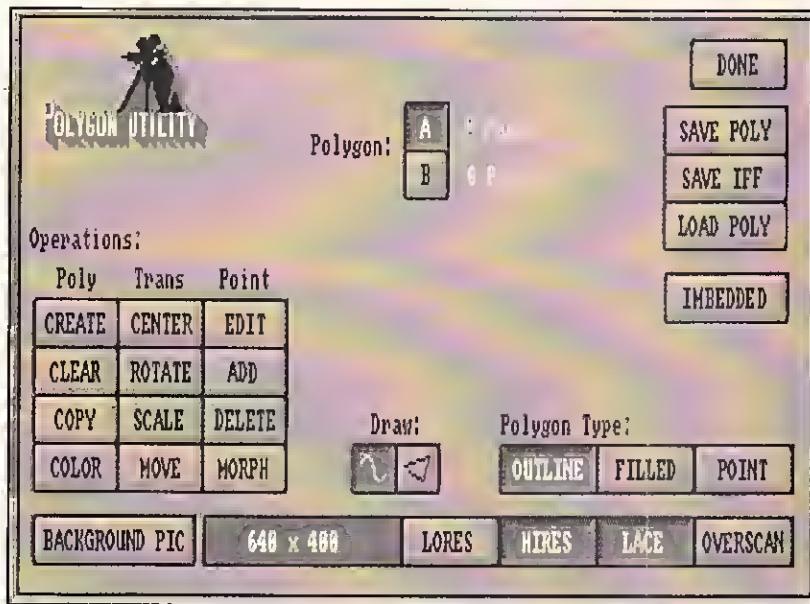
CAPABILITIES

ANIM support is much improved in *Director II*. Timing, which is handled through a loop containing a PAUSE command, is much more flexible now. You have three options for PAUSE: pause for a particular period of time from the previous pause, the previous frame of an ANIM, or pause UNTIL a particular frame. *Director* now supports the ANIM opmode 5 - used for anim brushes in *Deluxe Paint III* - and allows you to play your ANIMs backwards or forward.

MIDI OUT is now supported through the SMUS module, and it allows for three different ways to synchronize your script to MIDI events. You can synchronize to any note, a specific note, or an "invisible" note. That last bit means that you can turn off the voicing of the track you're using for synchronization, and just use it as a trigger. Want to play a long sound sample? No problem. *Director II* supports sampled sound files of any length. You can play sound samples from memory, floppy, or hard disk.

There are more palette effects available in this new release. Hue, Saturation, and Value are now user-adjustable for any displayed image. This allows you to tint an image, to fade a color image to black and white, or any other color within the 12-bit Amiga color standard. Palette masking is available as well. One possibility here would be to "mask off" half of a palette, and fade in or out the other half. Creating a Cheshire Cat which slowly faded, leaving only its grin, would be a snap.

Buttons - gadget-like areas that cause something to happen when you click on them - are now directly supported by *Director*. Buttons can be either rectangular or irregular in shape, and are defined by their color rather than their boundaries. The utility that *Director*



One of the many new "user-friendly" screens incorporated into *The Director II*.

supplies for button creation allows you to call the IFF file containing the graphic of the screen you want to use. You then drag a rectangle over the area you want to define as a button. Click on the mouse button when you've placed the rectangle, and *Director* will insert the required code into your script. There's a trick to this, of course. *Director* is looking for a certain color within the area defined by the rectangle. As long as there is no other area of the same color within that rectangle, *Director* can recognize the area you've defined as a button. Once you've defined this area, it behaves just like a gadget. Click on it, and whatever action you've specified will take place.

One of the most treasured features of *Director* - the ability to use the Blitter directly - has been expanded. Previously, you were limited to single-pixel blits. You can now set the cel size yourself. Need to transfer 8 pixels at a time? 100? You've got it. *Director* also supports blits from fast RAM to chip RAM. Owners of the Amiga 3000, which can shuttle data between fast and chip RAM twice as fast as earlier machines, are going to love this feature. One interesting note: If you've set a cel size which is a multiple of 8 pixels, *Director* will use the CPU for blits. It turns out that this approach is faster than using the blitter.

The improvements I've listed should be more than enough to satisfy the "power users" of *Director*, while the "ease-of-use" enhancements will allow a much larger audience to make use of its capabilities. Is *Director* the program for you, or would something like *AmigaVision* or *CanDo* or *Ultracard* better meet your needs? .info will be taking a look at some of these programs in the future, and we'll try to make your journey through the multimedia jungle a safe and happy one.



The Director II,
The Right
Answers Group,
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90510,
213-325-1311

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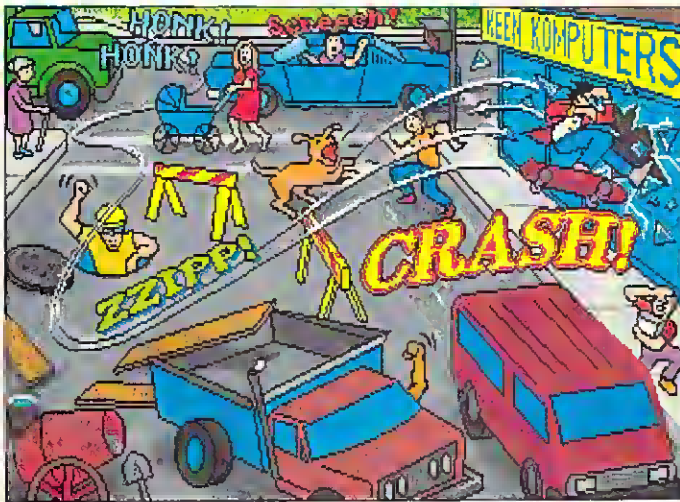
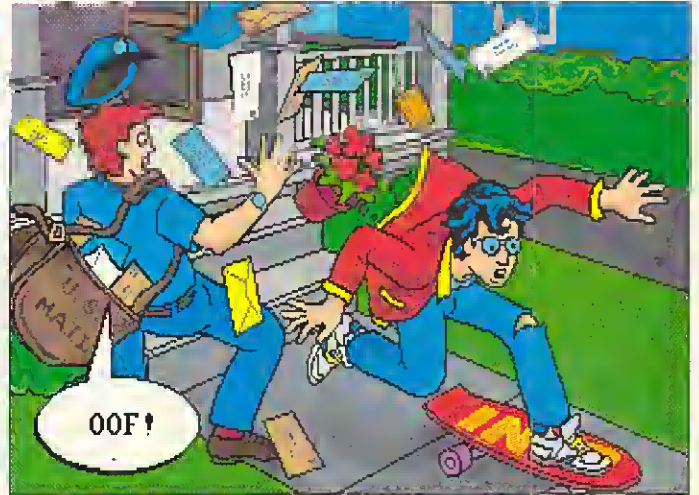
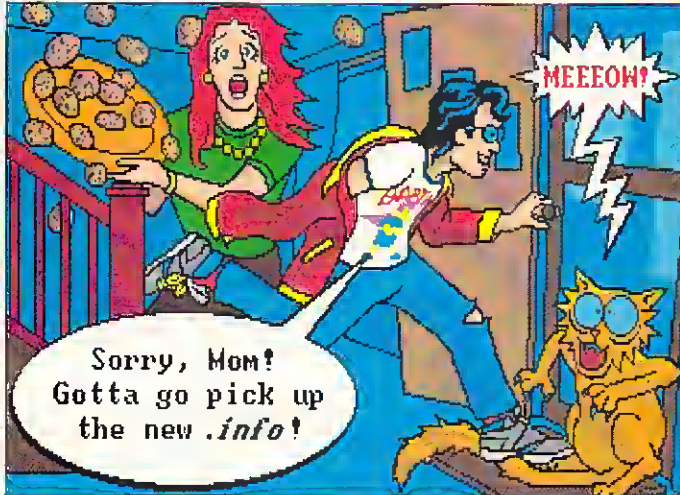
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H^{on} Hardware

Morton A. Kevelson

Mort Kevelson joins *.info* this issue as our regular Hardware columnist. In his first column, he examines the *A-Max II* Macintosh emulator.

A-Max II is the latest version of the Macintosh emulator from ReadySoft. Its basic operation has not changed since its first release: that is, it turns your Amiga into a single-tasking equivalent of a Macintosh computer. *A-Max II* offers two notable improvements: it now supports Amiga hard drives and it emulates Macintosh digitized sound using the Amiga sound chips. Since *A-Max II* is built into a seven inch plastic case which connects to the Amiga's disk drive port and is too big to fit into the floppy disk drive even without its little snap-in plastic feet, it qualifies as hardware. If you already have an external floppy drive plugged into the Amiga's disk drive port, you can plug the *A-Max II* cartridge into the floppy drive's pass-through.

The *A-Max II* cartridge, which has not changed since its original release, serves two functions. It houses a set of 128 kilobyte Macintosh ROMs (note that the 64 kilobyte ROMs can no longer be used with *A-Max II*) and it acts as an interface for an external Macintosh compatible floppy disk drive. I strongly recommend that you get a Macintosh compatible drive to use with *A-Max* since the Amiga disk drives cannot read the Macintosh disk format. Macintosh disk drives are unique in that they are variable speed devices. The Amiga disk drives, like most other computer drives, rotate at a constant speed.

DRIVES AND DISKS

Without a Macintosh drive attached to *A-Max*, you will have to transfer Mac files to the Amiga using either a modem or a cumbersome copy procedure which is provided with *A-Max II*. The copy procedure involves a 272 kilobyte capacity intermediary disk format which can be read by both the Amiga and a Macintosh. With a Macintosh compatible disk drive you can simply diskcopy the Mac software to *A-Max* format disks. Only a few Macintosh compatible disk drives will work with *A-Max*. These are the original Apple Mac drives, the one made by Cutting Edge, and the *AmigaTosh* from Memory and Storage Technologies (M.A.S.T.). I have been using an *AmigaTosh* with *A-Max* for some time without any problems.

Macintosh disk drives automatically eject the floppy disk when required. In fact it is downright inconvenient to get a floppy out of a Mac drive any other way. Since the Amiga drives are manually operated, *A-Max* reminds you when a disk can be removed by placing the corresponding drive number at the top of the display.

In addition to a set of the 128 kilobyte ROMs, you will also need a copy of the Macintosh system software. *A-Max II* will work with Macintosh system versions as high as 6.0.5. If you are using the 272 kilobyte disk method to transfer files, then you will also need a copy of the Mac system version 4.1, as it is the latest release that is small enough to fit onto a 272 kilobyte disk. Without an operating system in the Mac, you just can't run the transfer program.

In normal operation, *A-Max II* can read and write to either the 800 kilobyte Macintosh disks (if you hook up a Macintosh disk drive) or to a special Amiga compatible 800 kilobyte *A-Max* disk format that is used by the Amiga's floppy drives. The *A-Max* disk format is not compatible with AmigaDOS. Up to four floppy drives can be used by *A-Max* as Macintosh drives.

CONFIGURATIONS

A-Max II lets you set aside a part of the Amiga's memory for use as a RAM drive, which is treated as a hard drive. You can reboot from the RAM drive as it will survive a Shutdown and Restart of the Mac system.

If your system has a 68020 board with a memory management unit (MMU) or a 68030 board, *A-Max II* can use the MMU to remap the Amiga's memory into one contiguous block which will be compatible with the Macintosh operating system. When it reconfigures the memory, *A-Max II* optimizes the memory map so as to take advantage of the extra speed which will be available from any 32-bit RAM in the system. *A-Max II* uses nearly all of the Amiga's memory for the Macintosh, as it needs only 128 kilobytes for its own code and another 128 kilobytes for a copy of the Macintosh ROMs.

SCREEN MODES

512 x 342 (standard Mac)
640 x 400 (NTSC)
640 x 512 (PAL)
672 x 460

VIDEO MODES

Hi-res
Hi-res Interlaced
ECS Productivity
ECS Productivity Interlaced
A2024/Moniterm

A-Max II

☆☆☆☆

ReadySoft

30 Wertheim

Court, Unit 2

Richmond Hill,

Ontario L4B

1B9 Canada

416-731-4175

A-Max II's display options cover a wide variety of screen modes and video modes. These are summarized in the accompanying table.

The ECS modes are based on the Enhanced Chip Set from Commodore. Most Mac applications will adapt themselves to any of the display options; however, I have run across some applications that would not work unless the display was set to standard Mac mode. Macintosh monitors are designed to generate square pixels. The Amiga display which comes closest to a square pixel aspect ratio is the hi-res interlace mode (640 x 400).

HARD STORAGE

The most notable addition to *A-Max II* is its support of a number of Amiga hard drive interfaces. Setting up *A-Max* to work with a hard drive requires a dedicated drive or partition for use by the Macintosh system and a copy of the appropriate *A-Max* driver in your devs directory. If you do not have a spare partition available, you will have to back up your data and reformat your drive in order to create one. The first time *A-Max* is run, it will reformat the partition as a Mac drive.

I had considerable difficulty getting *A-Max II* to work with my IVS *TrumpCard*. It took several phone calls to both ReadySoft and Interactive Video Systems before IVS' technical support suggested that I perform a low level format of my hard drive. This solved the problem. It seems that the Macintosh operating system is sensitive to incorrect data on its boot disks. The wrong kind of garbage can cause the Mac to crash. This bit of information should have been included with some emphasis in the *A-Max II* manual.

As of this writing the following hard drive interfaces are supported by *A-Max II*: Great Valley Products (ver. 3 or higher of the GVP ROM), IVS *TrumpCard*, Xetec *FastCard*, Amiga A2090, and Amiga A2091/A590. I expect that a large number of *A-Max* users and potential *A-Max* users will be disappointed by the lack of support for the Supra interfaces. This is unfortunate as I happen to have a Supra *WordSync* on hand and I was unable to try it out with *A-Max II*.

NEW SOUNDS

Support of digitized Macintosh sounds has been added to *A-Max II*. This feature works best with sound software that uses the official sound routines in the Macintosh operating system. Applications which try to directly access the Mac's sound hardware may give unpredictable results. I tried out the sound feature with some Hypercard samples with excellent results. I also got good



The *A-Max II* setup screen offers a multitude of user options.

sounds out of a demo of the *Pipe Dream* game. On the other hand, *Music Works*, a Macintosh music composition program, produced distorted, but still recognizable, sounds.

PRINTER PROBLEMS

The one beef that I had with the original *A-Max* and that I still have with *A-Max II* is its printer support. The best results will be obtained if you have an Apple ImageWriter connected to the Amiga's serial port. *A-Max II* lets you set up the Amiga's serial and parallel ports to emulate the two Macintosh serial ports. The normal configuration is to use the serial port as the Mac's modem port and the parallel port as the Mac's printer port, though this can be changed.

A-Max II does not support the AppleTalk local area network so it cannot talk directly to an Apple LaserWriter. The work around is to create PostScript files with the Mac application and then dump them to the LaserWriter.

If you have a 9-pin or 24-pin Epson compatible printer and the Apple ImageWriter printer driver then *A-Max* can be set to emulate the ImageWriter on the Epson compatible. If you have the Apple LQ ImageWriter driver then *A-Max* can print 24-pin graphics on the 24-pin printer. Since the print densities on the Epson compatible printers do not match that of the ImageWriter, the printed output will be distorted. Printing best quality graphics on a nine pin Epson results in a 40% horizontal compression. On a 24-pin Epson the result is a 20% vertical elongation. I was unable to print draft quality graphics using a 24-pin Panasonic KX-P1124 with the LQ ImageWriter driver. In general, I was able to improve the printing of the Mac's bitmapped images by converting them to IFF files and then printing them on the Amiga side.

GOOD BUY

In many ways *A-Max II* outperforms some of the original Macintosh models. If Apple really wanted to be clever, they would buy up a bunch of Amiga 500s, equip them with *A-Max II*, repackage the whole system, mark up the price and resell them as new improved replacements for most of their current low end models. Apple would make a higher profit, while the Mac users would get more for their money at lower cost than they do now.

For Amiga users, *A-Max II* represents a cost effective, although not inexpensive, way to get into Macintosh computing. Although *A-Max II* is reasonably priced at \$199.95, a complete *A-Max II* system can set you back considerably more than that. You will also need a set of 128K Mac ROMs at about \$150 and of course a Mac compatible drive is highly desirable. Keep an eye out for dealer combination packages which frequently offer an *A-Max II*, a set of Mac ROMs, and a Mac disk drive for well under \$500. Of course the price of Macintosh software is another story.



HARD IS WARE IT IS

Talk about typecasting. Ever since I took apart a VIC 1541 disk drive and published photographs of its internals in the February 1984 issue of *Ahoy!* magazine, all of the other magazines have expected me to do similar things for them. Since this is a hardware column, I would like to delineate its scope. Essentially, anything that attaches to or installs inside of any Amiga computer, does not slide into a floppy disk drive, and makes a satisfying thump when I throw it against the wall is hardware and fair game for these pages.

- Morton A. Kevelson

In this issue, Jim Butterfield expounds on the Amiga's wonderful innards; Chris Zamara takes us on a tour of all those drawers on the Workbench disk; Nick Sullivan introduces novice programmers to loops and conditional branching; and David Martin wraps up his three-part series on hard disk maintenance.

TWELVE ASTOUNDING THINGS ABOUT THE AMIGA'S INNARDS

by Jim Butterfield

The Amiga is an astonishing machine. From the outside, a user can use Workbench to click-and-go, putting the computer to work without any special "inside knowledge." But it's simple on the outside thanks to some amazingly sophisticated inner workings.

Want to brag about your Amiga? Especially to technical types? Here are some items for you:

1. Multitasking really does give you "something for nothing." It takes a while for a beginner to learn how to use it; but the result is "many computers for the price of one."

You might think that when the Amiga takes on more than one job, each will run proportionately slower - each of two tasks would run at half speed, for example. In most cases, that's not so; each task will run at virtually full speed.

Here's why. Almost all computer programs spend most of their time waiting for something: a human, a device such as printer or disk, a modem or some other part of the slow "outside world."

An example will help show you how it all works. Suppose you're typing at full speed on a wordprocessor, and at the same time the Amiga is dumping a file to the printer, additionally, it is connected to a bulletin board with the board's traffic displayed in a screen window. No matter how fast you type, the computer spends most of its time waiting for you to hit the next key. While it's waiting, it switches away from this task, and looks to see if the printer is ready to receive more material: if not, it will check the modem for new incoming characters. And it still spends most of its time waiting. All three jobs are running at virtually full speed.

2. Programs load wherever they can find space in memory; no fixed locations. Yet, no matter where the program ends up, it will work correctly. The Amiga's "loader" knows how to correct the program as it brings it in.

Once you understand the concept of multitasking, you can see why the Amiga must be able to do this kind of "relocating load." You couldn't have two programs locked to the same address in memory; they would be in conflict.

3. More about loading: programs break into pieces ("hunks") as they load, with each piece finding an independent piece of memory in which to live... yet the hunks don't lose track of each other.

If you read the technical documents, you'll find hunks sometimes referred to as "sections" or "segments." Whatever you call them, they are useful for two reasons. First, a big program doesn't need to find a single big piece of memory in order to load. It can be made up of several medium-sized hunks, each of which may find an independent part of memory in which to reside.

There's a second reason for programs to be made up of multiple hunks. The Amiga currently has two kinds of memory, "chip" and "fast." Most hunks could go into any memory available: fast if available, otherwise chip. But some hunks, which might contain things like graphic images or sound waveforms, are most usefully directed to chip RAM. That's where they will be of most use, since the cus-

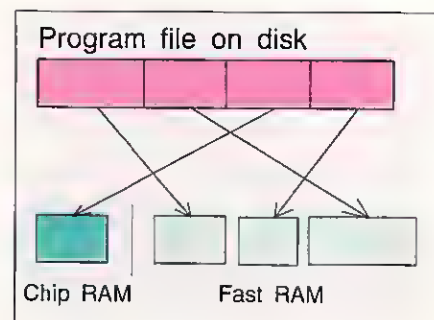


Fig. 1. A program "scatter loads" into the Amiga's memory, but the individual "hunks" still keep track of each other.

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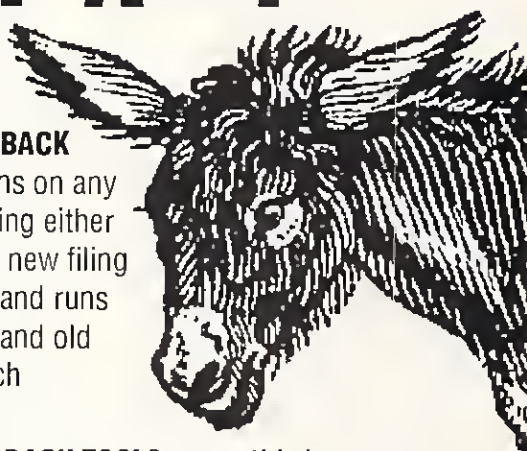
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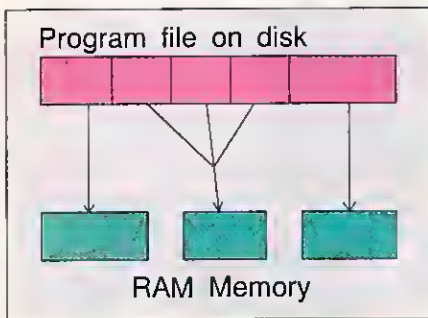


Fig 2. Using "overlay" techniques, several hunks may be targeted to the same chunk of RAM memory.

tom chips that do graphics and sound will be able to reach them directly.

4. Even more about loading: a program can arrange to bring in only some of its hunks at load time. The other hunks will be brought in later as needed, replacing earlier hunks that are no longer being used. This saves memory. The technique is called an *overlay*. Figure 2 illustrates this.

5. A final note on loading: the Amiga can arrange to have programs pre-loaded and lying in memory ready-to-go... yes, with all those pieces scattered around memory.

When such a program is invoked, it goes to work right away. There's no need to load it; it's pre-loaded. And when the program completes its run, it stays in place, waiting for the next call. This type of operation is called making a program *resident*. It can save disk loading time, and uses less memory than putting a program in RAM: disk.

6. Amiga files often have a "magic" number so that you (or the Amiga) can spot what kind of file it is. This magic number is found at the start of the file - the first two or four bytes. Sometimes these four bytes spell something; for example, IFF files almost always start with the four characters FORM. Other times, there's just a binary value there: if you can read hexadecimal, you'll see the value E310 at the start of "workbench object" (icon) files.

You can look at programs and files to try this sort of magic by commanding (from CLI/Shell) **TYPE HEX <filename>**. As soon as the output begins, stop it with the CTRL/C keys; you just want to look at the first few bytes.

Not all disk files start with a magic number, of course. You may have a number of data files that contain just that: data.

7. The operating system of the Amiga comes in parts, too, called "shared libraries." Not all libraries are loaded in the computer all the time.

You know that your computer can talk, using command SAY or program SAY. Such programs translate English words into sounds ("phonemes") by means of a translator library, a set of programs. When this library is needed, the program will ask for it. If the library hasn't been loaded previously, the Amiga system will bring it in and tell the program where it is located.

That's one of the reasons that floppy-disk systems sometimes ask you "PLEASE INSERT SYSTEM DISK IN ANY DRIVE." It wants to read in a library to enable the program to continue.

Shared libraries are written in a clever way ("pure" coding) that allows them to be used simultaneously by more than one program. While the library is in the middle of translating one phrase for a given program, the Amiga might switch away from that program and set a different program in motion. That program could also ask the same library to do work: yet there would be no confusion between tasks.

8. If a program calls in one of these shared libraries, and later tells the Amiga that it's no longer needed, the Amiga will not scrap it. It will keep it around in memory. That way, if it's needed again, it won't need to be reloaded. Of course, if the Amiga runs short of memory (or is told to "purge" memory), all unused libraries get kicked out of memory. That way, you don't needlessly waste library-loading time. But if you need the memory, you still get it.

9. A programmer can create a program that retains all its "symbols" - and more. This extra material will make the program on disk a little bigger than it needs to be, but the extra stuff will be stripped out when the program comes into memory. The reason for allowing extra information to be carried within the program is to make debugging easier; but sometimes you might hear of a final release version that still contains plenty of extra program data.

Some computer owners love to snoop around the innards of programs. When the original program labels are left in place, there can be delightful discoveries: programmers often use whimsical names in their code. You might find GODZILLA, COWABUNGA, PANIC, or PIRATED in among the names.

Some language compilers - such as SAS/C - give the programmer the option of including the complete source program in the run package. At debugging time, this allows the programmer to see original program lines together with the code they produce. It's good for debugging, and it's also good for showing beginners how a compiler works. In most

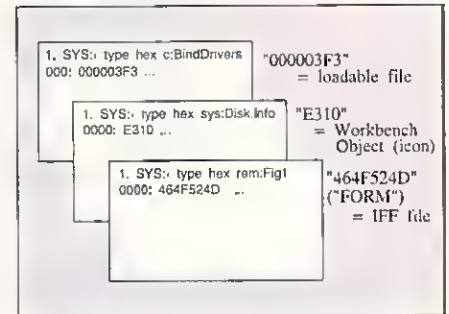


Fig 3. Many files begin with a "magic number" which signals the file's purpose.

cases, this material will be gone by the time a program is released. But once in a while, it's overlooked.

10. Mouse activity (movement, buttons, and menus) and keyboard actions are normally picked up by a "broker" program - Intuition - which decides, based on which window is active, who should get this information. The information is then sent along by means of a "message" to the appropriate program. Intuition also knows when a program is not interested in certain activities, in which case it throws away such information.

It's a small miracle to be able to click into a window and have everything - mouse movements, clicks, menus, keyboard activities - switched to fit that application. Figure 4 shows the concept.

11. When you send information to the printer ("PRT:"), it funnels through a "printer driver" which tailors special actions (such as underline) according to how that specific printer does the job. The printer driver is very clever, and often creates special characters that the printer itself would not normally be capable of printing.

My printer isn't smart enough to know how to print characters such as ç or €, although they are easy enough to generate on the Amiga's screen by use of the ALT key. But the printer driver, specific to my printer, knows how to fake them all. For example, the cents symbol is produced by printing a letter c, backspacing, and then printing a vertical bar. On *your* printer, it may do the job a different way. But the user doesn't need to know about this: the job gets done automatically.

12. The Amiga allows many levels of input/output handling; you can choose a level according to the amount of "special" work you need to do on a device. In many cases, AmigaDOS will send information for

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Featured Disk

FD39a & b: Tobias Star Trek - This is a new, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Very Excellent!!! Counts as two disks. Requires 512k memory, and a 500, 2000 or Pal Amiga.

New Disks

FD41: Games - Includes Capital Gains - a stock market game, Ball a Arknoids type of clone with many great twists, and Desert Shield - a shoot em up with a destroy and conquer theme.
FD42: Games - Includes SpaceWar3 - a remake of this original Amiga classic, Trippin' - a fascinating board game of intrigue, strategy, and player manipulation, Dominion - an engrossing strategy game of galactic war and conquest, Frog - a frogger type clone, and Mines - a very challenging strategy board game.
WB66: Icons #2 - Lot's of real icons. Also, several wonderful programs that let you create your own icons, modify and manipulate icons and into structures.
WB67: MED songs - Several .mod files (playable songs) for use with noisetracker, soundtracker, or MELO. MEDplayer included.
WB68: Music Utilities - several good utilities for the Amiga music enthusiasts. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtracker, and MELO. SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.
WB69: Music - This disk has over 90 minutes of classical and modern electronic music for your Amiga.
WB70: Desk Top Pub - Also, transfer Macintosh screen fonts, Mac or IBM format, AFM metric files, to Amiga screen fonts and PPage .mefc files. With this program open doors to the libraries of Adobe and PostScript type, Calendar - month templates in PS form, Post - a full featured postscript file display and print utility.
WB71: C64 Emulation - The A64 Package is a complete, very powerful, Commodore 64 emulator.
OD71: C compiler - This disk contains Dice, Matthew Oillon's full featured, powerful C compiler and environment system.
OD72: VT Emulators - Contains three powerful, full featured vt emulators, with many advanced features including kermi, xmodem and elektronix protocols, VaxTerm, VLT, and more.
OD73: BBS - Includes three different BBS's with many advanced features. PLW, Pro-BBS, and Trans-10.

Other Great Disks

FD5: Tactical Games - BullRun - a Civil war battle game, Metro - you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.
FD6: GAMES! - This disk is chock full of games including, Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopardy - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.
FD7: PACMAN - This disk contains several pacman type games including, PacMan87, MazMaze, and Zoro.
FD9: Moria - This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!
FD10: HackLife - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great Amiga graphic interface. Play time several weeks!
FO12A, FO12B: Star Trek The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1 Mo and two drives (or hd).
FO13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoies, and others.
FD14: Dungeon Master Hints and Arcade Games - OM maps, spells, item locations, and more, also on this disk, Hball - an aikido breakout type game, Tra - a Qix type clone.
FO16: Strategy Games - Includes Diplomacy and Empires, both great conquer and rule multiplayer games similar in concept to Simcity and Populace. Also includes blackbox, hearts, and others.
FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.
FO20: Tactical Games - MechForce(3.72): A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30' x 40 foot tall, fire breathing, earth shaking colossus that obeys you every whim.
FD26: Arcade Games - Marble slide, lns is a truly commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants, a small version of the arcade game of the same name, also SuperBreakout a pong/arkanoids type game.
FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on your mission, SpKiller - try and penetrate enemy lines with this game, and Relational - another great game.
FD32: Game Cheats and Flight Simulator - Includes an instrument flight simulator for a DC10. Also Cheats and Hints for the following games, End Weaver, Falcon, c.i.t.d., SimCity, SpaceAce, Space Quest, Test Drive hd install, and Extrad, a program that gets all the text from within a game (or other) which makes cheating easier. Also several football teams (team files).
FD33: Arcade Games - Freddy a mario brothers type of game, Gerbil's a target practice game, Pipeline a German interpretation of Pipe Dreams, Tron a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.
FD35: Omega (v.1.3) - A new dungeon and outposts adventure

game in a similar vein as hack, rouge, and moria. This version is considerably faster and better than all previous versions. Play time, months.

FD37a & b: Tactical Games - Empire (2.2w) This game comes highly recommended. Now with a full-featured graphic front end, Empire is a rich simulation of international politics, economics and war, which is played over a period of a few months by 2 or more people. Players can run their countries from the normal Amiga keyboard, or via a modem at 300 to 2400 baud. Counts as two disks.

FO38: Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card game, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.

FD40: Arcade - MiddleEast - a timely arcade game of death and destruction set in Iraq, BackToTheFutureIII - a very playable demo version of this soon to be released commercial game, City - a missile command clone.

WB4: Telecommunication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) - Handshake is a full featured VT52/100/102/220.

WB5: Fonts #1 - Several fonts (35) for the Amiga, also included are five PageStream fonts and ShowFont - a font display program.

WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.

WB10: Virus Killers - The latest and best VirusK(4.0), Kv(2.1), and ZeroVirus(1.3).

WB12: Disk Utilities #1 - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery, archiving and organizing, and all sorts of file and directory manipulation. Includes SIO, greatly reduces CLI use.

WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrintGen you can make your own.

WB15: Business - This disk contains a spreadsheet, a database, a project management program and financial analysis (stocks).

WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.

WB18: Word Text Processors - This disk contains the best editors. Includes, TextPlus (v2.2a) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features, TextED(v2.8) an enhanced Emacs type editor, and a spell checker.

WB20: General Interest - DiskSav V1.42 a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSav doesn't have, 30Look gives a 30 appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of an image.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map it image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP.

WB25: Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

WB26: Disk Utilities #2 - MrBackup, QuickBackup - two well done utilities to help with harddisk and floppy disk backups, FileMast - a binary file editor, LabelPrinter - Disk label printer with very powerful features.

WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

WB29: Graphics and Sound - This disk has several different Mandelbrot lypa programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, FractalGen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mosira - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk, you'll love it!

WB33: Circuit Board Design - several terrific routines for the electronic enthusiast, including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.

WB36: Graphics - On this disk are several programs to create stunning optical images including, MPain - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular

Images as part of your workbench screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphics.

WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tessellator - a program that helps generate fantastic looking, recursive M.C. Escher type pictures.

WB39: Music - Intulracker is an German offer of an exquisitely well done program that allows you to play music on your Amiga with CD like controls. Lets you strip out music from your favorite games or others and include them in your music library.

WB40: Music - 'CD on a disk', 90 minutes of modern music on this well presented collection.

WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your Amiga. Similar to SoundTracker but better. Very powerful, easy to use program.

WB43: Business - This disk contains AnalytCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package.

WB53: Graphics - The disk contains C-light - The easiest to use raytracing we have seen to date. This one started out life as a full featured commercial product similar to Sculpt3D. Raytracing programs can generate stunning, realistically shaded objects. Also, sMovie - a full featured video text filler similar to ProVideo, Broadcast Tiller. Great video scrolling, wipes, special effects, and more...

WB54: Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Bann printer for the PPI PrintStudio - a well implemented all-purpose printer/utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and many more.

WB55: Application - XCopyIII - a full featured disk copier, make backups of write protected disks. RoadRoute - find the quickest route from one city to another, highway description included, Clary - a diary program like "Daisy Howard M.D.", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.

DO47: Pascal - This disk contains everything needed to program in Pascal. Includes, AS8K (1.2) 68000 assembler, Blink linking software and PCO (1.0) a modest Pascal sub-set compiler.

DD49: C Compiler - contains zcc(1.01) July K&R, zcc(1.0) front end, AS8K(1.2) assembler, Blink linker.

OD51: Circuit Analysis - Aspic (2.3) A full featured program for electric circuit analysis.

OD52: Scientific - Includes Elements - an incredibly well done periodic table program with source, Scientific plotting - over 600k of Lattice C source routines that can be included in your own programs.

DD54: Compression - This disk is loaded with ALL of the best file compression programs and aids for the Amiga. Many of the programs can be used by the new user. Includes Arc(2.31), Lharc(1.0), Lhwrap(1.03), Pkax(1.0), PowerPacker(2.3a) a must have by all, Zip(1.0), Warp(2.04), and Zool(2.0). Also IFFcrunch an excellent compression for IFF files.

DD55: ARP - On this disk you will find the complete ArpRel3.0 release including the full user docs, the full Developers guide, and Comm (1.4). ARP is the official AmigaDOS Resource Project (ARP) release 1.3. ARP makes many improvements to AmigaDOS and makes your system easier to use from the CLI.

OD57: Advanced Utilities - Msh - like Cross-dos copies files to and from MS-DOS, Pal-NTSC - convert any pal program to NTSC and vice versa. Also several utilities that improve your startup-sequence, plus 25 more programs.

DD82: Basic and Scheme - Cursor - a full featured Amiga Basic compiler, basic and ttext - several wonderful routines to help in basic programming, and Scheme - an interpreted object oriented programming language.

OD85 C Tutorials - Several well done tutorials on how to program the Amiga. Includes tutorials and working examples on Device drivers, IFF reads and writes, Sound implementation, Arcade game design and implementation, Double Buffering, and others. A must have for Amiga Programmers.

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you with Read or Write; but you can dig deeper with DOS packets, deeper again by communicating with the device, and get extremely close to the hardware by using the resource. The ultimate level - addressing the hardware registers directly - should be avoided at all costs... unless, of course, you know *everything* the Amiga is doing *all* the time.

Most of us use the Amiga at its highest level. We send text to PRT: rather than PAR: so that the Amiga will do the clever character translations. We think in terms of files, rather than disk sectors. But for those that need to go deeper, the Amiga has all the levels, layer upon layer, that let the programmer do whatever trick is desired.

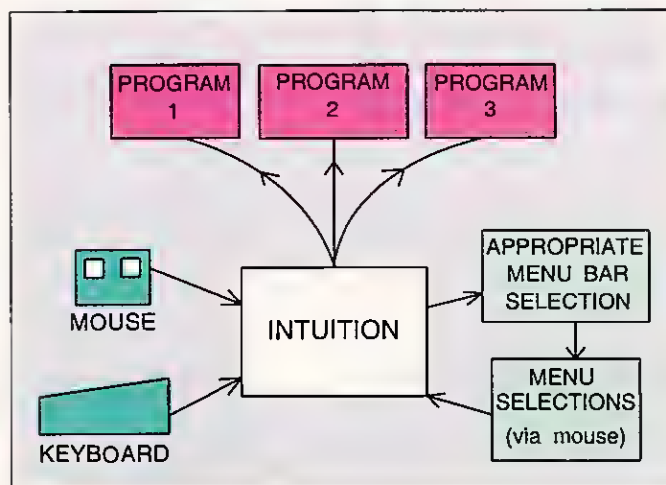


Fig 4. Intuition acts as a clearinghouse, passing keyboard and mouse information to the appropriate screen, and setting up appropriate menus.

PROGRAMMING FUNDAMENTALS

Part 3 - Control Statements & ARexx Programming

by Nick Sullivan

So far in this series we have covered just enough aspects of programming to talk about individual lines of code: statements of various kinds, simple and complex expressions, and function calls. With only these building blocks, we could already write an elementary program of this form:

```

Statement 1
Statement 2
...
Statement n
  
```

In such a program, each of the statements 1 through n is executed in turn, a logical but somewhat limiting arrangement. What we need, and will take up this time, are facilities for *repetition* and *conditional execution* of program statements.

At first glance, you might think that the model of a program given above already allows for repetition. After all, is there anything to prevent you from entering the same statement or set of statements in succession as many times as you wish? No, though for a large repetition count this approach would be very awkward and error-prone. What you *can't* do is cause a portion of a program to be repeated with a repetition count that is not known until the program is run; when, for instance, the count is

obtained from the user via a string gadget.

Conditional execution of statements provides a program with the ability to make decisions on the spot during a run. For instance, it is generally a bad idea to try to execute a statement with an expression involving arithmetic division if the divisor happens to be zero; if this condition is detected, it might be preferable to execute a different statement warning the user that a problem has occurred. You can think of conditional execution as being a special case of repetition, in which the repetition count will be either zero or one.

Programming languages provide special statements to make repetition and conditional execution possible: these are called *control statements*. Stylistic differences aside, they tend not to vary all that much from language to language. In ARexx (the language we'll be using most for examples from now on), the style of repetition control statements is a little unusual, being implemented as a single statement type with several variants rather than as several statement types, but the concepts and even many of the syntax details are the same for ARexx as for other languages like C, Modula-2, COMAL, and AmigaBasic.

Running ARexx Programs

We hope you will take the time to enter

and run the ARexx programming examples in this and future installments of this series. Here's an outline of how to do this for those who aren't sure. Feel free to skip to the next sub-heading if this section doesn't apply to you.

The first step is to make sure that ARexx is properly installed on your system. To check this, type **rexxmast** into a CLI window. If ARexx is available, a copyright message should be displayed almost immediately. Perhaps there will be an extra line following the copyright message with the words: "REXX server already active". This means that you didn't need to type **rexxmast** in order to activate ARexx (though it did no harm, either), perhaps because the **rexxmast** command is in your startup-sequence.

If the **rexxmast** command fails or is unavailable, consult Chapter 2 of your ARexx manual for complete installation instructions. The installation procedure for ARexx is very simple.

To type in an ARexx program, it is best to use a text editor. In an emergency, use the system text editor, *Ed*; if you have an alternative to *Ed*, use that instead. *Always* make sure that the first line of every program contains an ARexx comment, as shown in the examples. A comment looks like this:

```
/* This is a comment */
```

If you do forget the comment, ARexx will give you the particularly unhelpful error message "Program not found" when you try a test run. Instead of condemning yourself to hours wasted trying to understand why ARexx can't find a program that is *right in front of its nose*, remember the comment.

After you have typed in the program, save it to disk. It is a good idea to keep a special directory for your ARexx programs, and to assign the name `rexx:` to that directory, perhaps in your startup-sequence. This is because ARexx automatically searches for programs in `rexx:`, saving you the trouble of typing in a full path name when you run the program. Since ARexx also searches the current directory, you can `CD` to your directory of ARexx programs as an alternative to doing the assign.

Now all is in readiness: ARexx is installed and active, and your program has been saved to disk. Supposing its name to be *Example*, type this:

```
rx example
```

And with that, your program will run.

Repetition - Say That Again!

The easiest kind of repetition to understand has the form: *do something a certain number of times*. Here is a simple ARexx example:

```
/* Repeating some vital facts */
do i = 1 to 10
  say "This set of statements is called a 'loop'."
  say "Each repetition is an 'iteration' or 'pass'."
end
```

You have probably guessed that this example consists of 10 iterations of (or passes through) a loop consisting of two say statements. The line beginning with the keyword `do`, and the one consisting only of `end`, together constitute the loop "machinery." In the `do` line, the phrase `1 to 10` seems very self-explanatory, but what is the purpose of the variable `i`?

In loop parlance, `i` in this construction is a *loop index* variable. On each pass through the loop, the value of `i` is updated. Try this now:

```
/* Display loop index value */
do i = 1 to 10
  say "The value of i is" i
end
say "And finally, i is" i
```

As you see, `i` takes on the successive values 1 through 10, making the value available to statements within the loop. Apart from the unusual method of initialization, `i` is a perfectly normal variable and can be used in any normal way. You can even modify its value yourself within the loop, though it is generally a *very bad idea* to do so.

We are not limited to counting by ones: that's just the default. With one more keyword, `by`, we can set the *increment* value that is added to the loop index on each iteration:

```
/* Counting by sixes */
do loop_index = 5 to 60 by 6
  say "Index value:" loop_index
  say "squared:" loop_index * loop_index
end
say "End of loop:" loop_index
```

Counting backwards is possible too, but requires the increment value to be negative. Run the previous example again, replacing the second line with:



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```
do loop_index = 60 to 5 by -6
```

Finally, recall from our earlier discussion that the repetition of statements can be controlled by variables and expressions, not just constant values like 5, 60 and -6. A contrived instance:

```
/* Counting without constants */
start = 1
steps = 15
limit = 45
do i = start to limit by steps
  say i
[end
```

In some languages, the number of iterations in this last example could be modified from within the loop by changing the value of the variables **limit** or **steps**. This is not true in ARexx: the expressions following the **to** and **by** keywords are evaluated only once, before the loop is first entered. We'll look later at two types of loop in which the termination is controlled from within.

Conditionals - Decisions, Decisions!

Computers can't think, but they make decisions all the time. The explanation of this apparent paradox is that computers really decide nothing as such, but merely implement specific instances of general decisions made in advance by programmers. Put another way, you might say the computer isn't making a decision, but following a rule. Such a rule is encapsulated in a *boolean expression*.

A boolean expression (named for George Boole, a 19th century Englishman who was a pioneer in the mathematical study of logic), differs from the expressions we've looked at so far in that its value is not a string or a number, but a *truth-value*: either *true* or *false*. Actually, that's an idealization: in many computer languages, the truth-values are numbers after all. Frequently, as in ARexx, *true* is equivalent to one, and *false* to zero; nevertheless, it is important to understand that the truth values are very different conceptually than the quantities with which they happen to coincide.

Many boolean expressions involve *relational operators*, the symbols for which are taken straight from elementary algebra. For example:

```
a < b
```

is read, "a is less than b." In a computer program, this would be a boolean expression whose value would be *true* if a's value is less than that of b, and *false* otherwise. More relational expressions:

```
a < b + 3 /* a is less than the sum of b and 3 */
pen > sword /* pen is greater than sword */
u <= v /* u is less than or equal to v */
p = 12 /* p equals 12 */
```

To program decisions, all we need is a type of control statement that will cause a given group of statements to be executed only if a certain boolean expression evaluates as *true*. In almost all languages, the keyword for this control statement is **if**:

```
if a < b then a = a + 2
if pen > sword then say "The Pen is mightier
than the Sword!"
```

The boolean expression is bracketed by **if** on one side and **then** on the other. The statement following **then** is executed if and only if the expression is *true*. If the **if** is to govern more than one statement, a *statement block*, bracketed by **do** and **end** takes the place of the simple statement, as in:

```
if u <= v then do
  say "IF may control multiple statements."
  say "A DO-END block is required, however."
[end
```

The above form of **if** gives us a way to write special code to meet a special situation (as when **u** is less than or equal to **v**). Sometimes we also need special code to cope with the alternative situation (as when **u** is *greater than* **v**). For this we need another keyword: **else**:

```
if u <= v then
  say "The test succeeded."
else
  say "The test failed."
```

We can have compound statements with **else** just as with **if**:

```
if p = 12 then
  say "P is divisible by 1, 2, 3, 4, 6 and 12"
else do
  say "P is not 12..."
  say "so I don't know what its divisors are."
[end
```

Controlling Loops From Within

When repetition and conditional execution are combined, we arrive at a method of loop termination less rigid than that of counting up to a limit whose value is known when the loop is entered. Instead, we evaluate a boolean expression on each iteration of the loop, terminating only when a particular truth value results. The commoner of the two forms available uses the keyword **while**. This loop will iterate until the boolean expression evaluates as *false*:

```
/* Print powers of 2 */
a = 1
do while a < 100000
  say a
  a = a * 2
[end
```

The second form uses **until**. As the keyword implies, an **until** loop will terminate when the boolean expression becomes *true*. A subtler difference arises from the sequence of operations in the two forms. In a **while** loop, the controlling expression is evaluated before the loop is executed; in an **until** loop, it is evaluated afterwards. The statements within an **until** loop are therefore executed at least once, which is not the case with **while**. Here is another version of the previous example - see if you can predict whether its output will be exactly the same:

```
/* Print powers of 2 */
a = 1
do until a >= 100000
  say a
  a = a * 2
[end
```

Stepping Beyond...

That concludes our quick survey of ARexx loops and conditionals. After you have tried writing some short programs of your own using the control statements in this article, look in Chapter 4 of your ARexx manual at some other statements we haven't yet examined: **select**, **when**, **otherwise**, **break**, **leave**, and **iterate**. If you have mastered the material we've discussed here, you shouldn't have any trouble understanding these as well.

Next time around, we'll put theory aside and set about building a complete ARexx program to accomplish a real world task.

HARD DISK MANAGEMENT PART 3

by David Martin

This third and final article looks at two of the most important items in hard disk management: backing up and maintaining your hard disk. Learning about these two items and knowing how to handle them will make managing your hard disk a snap.

Backing Up Your Hard Disk

Making backup copies of the files on your hard disk is the most important way to protect yourself against the loss of valuable data. Even if you never accidentally erase a file (or files!), hardware and software failures can happen. Take the time to back up your files periodically. Consider it the cheapest insurance available to guard against lost data.

Back Up Your Diskettes

No matter how carefully you handle your diskettes, they can still be mislaid or accidentally damaged. Making backup copies of your diskettes protects you if something goes wrong. Even if you install your software on a hard disk it is important to copy the original disk before you ever use it. Store the original diskette in a safe place and use only the copy. If something happens to the copy, make another copy from the original.

Backup copies of unprotected disks are easy to make by using the AmigaDOS *DiskCopy* command. For protected diskettes use a special program such as *Maverick* or *Project D*. Keep your backup

copies in a safe place and relax - should something unexpected happen, you're protected.

Develop A Backup Procedure

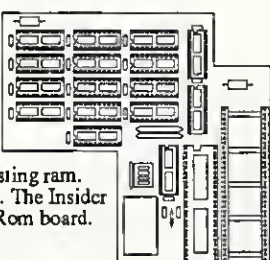
It can take a lot of diskettes to back up all the files on a hard disk. A full 40 megabyte hard drive, for example, could require up to fifty diskettes! Fortunately, you don't have to back it all up. You needn't back up program files, for example, since you've already got the original AmigaDOS and application program diskettes (plus the backup diskettes you made). Some data files may not change very often (i.e. configuration files), so it isn't necessary to back them up all the time either.

How often you back up your other data files, such as wordprocessor files, data bases, and spreadsheets might change often during busy usage times, but will remain unchanged most of the time. Your backup procedures will depend on how you use your computer and how often your files change.

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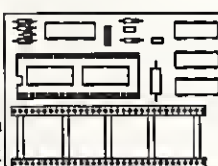
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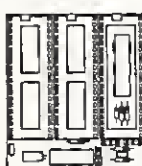
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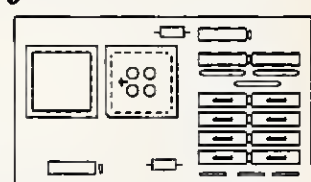
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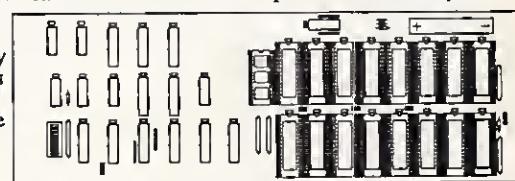
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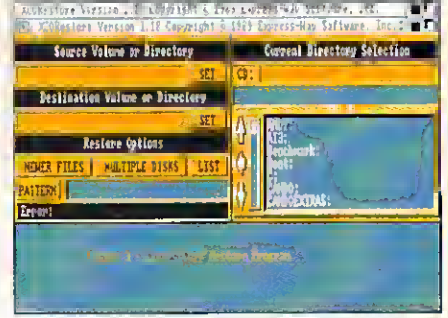
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ExpressCopy Restore Program

Remember that no matter how often you decide to back up your files, just do it on a regular basis. System failures can happen, but if you're careful and back up your files, such a failure will be an inconvenience rather than a disaster. You do not want to spend hours recreating files that you could have backed up in a few minutes.

Backup Software

The AmigaDOS *Copy* command could be used to back up files from your hard disk to diskettes, but this would be tedious: the *Copy* command is slower than other backup programs, and it cannot tell whether or not a file has changed since it was last backed up. By using the *Copy* command you are tempted to back up everything, which takes more time and uses more diskettes. You'd begin to hate doing backups and you would probably start putting off backing up your hard disk as often as possible.

Unfortunately, the current version of AmigaDOS (V1.3) does not offer commands that are better suited to backing up your hard disk. Version 2.0 of AmigaDOS does contain a hard disk backup program that is more suitable for backing up your hard disk. Current Amiga owners have to purchase a disk backup and restore program like *ExpressCopy* from Express-Way Software, P.O. Box 10290, Columbia, MO 65205 or *Quarterback* from Central Coast Software, 424 Vista Ave., Golden, CO 80401. I use *ExpressCopy*, but most of the *.info* staff uses *Quarterback*. Both are good choices.

ExpressCopy copies files much more quickly than *Copy* could ever do. A program called *XCO* (See Figure 2) is used to copy and store files to floppy diskettes. It will back them up and make the most efficient use of the storage space available. The files are easily accessible since the

data can be stored on normal AmigaDOS diskettes. The newest version of *ExpressCopy* uses a *CanDo* interface to make backups even easier.

Another program called *XCR* (See Figure 3) is used to restore files from the backup diskettes to the hard disk drive. It will automatically copy the files from the backup diskettes to the proper directory on the hard disk. It will even create the directory if it no longer exists. Both *XCO* and *XCR* are supplied on the *ExpressCopy* diskette.

An important note about backups is that AmigaDOS provides protection bits for its files. One of these bits is called the "archive bit." It tells AmigaDOS whether or not a file's contents have been changed. Backup programs use this bit to determine which files need to be copied and which files should be skipped. Using this feature can reduce backup times considerably. For

more information on protection bits refer to your AmigaDOS manual.

Using Other Backup Devices

If you back up many files frequently you may find yourself spending a lot of time backing up just because of the number of diskettes you have to swap around. A solution to this problem is to use a tape backup system or a removable hard disk or Bernoulli drive. Tapes can hold up to 60 MB or more, while removable hard disks can store up to 48 MB. These devices would be sufficient for all but the largest backup requirements.

Currently *ExpressCopy* only supports floppy disk drives (including the new 1.52 MB floppy from Applied Engineering) so I would suggest that you check out *Quarterback* if you are interested in using larger alternative backup devices.

★

THE WORKBENCH DISK

What's on it, and what you can take off

by Chris Zamara

The Workbench disk is so vital to the Amiga's operation that you can't even boot the system without it. On the other hand, the standard Workbench disk contains some programs that you might never use, taking up space on the disk that could be put to better use. If you've ever wondered just what all of those files on a Workbench disk are for, and what you can discard from your own boot disk, this article is for you. Workbench releases 1.3 and 2.0 are both covered (you may already have 2.0 by the time you're reading this!)

A Personalized Workbench Disk

Most users customize their Workbench disk so that the disk they normally boot from contains the programs and preferences that suit them best. This is especially important if you don't have a hard drive, because the commands and other programs that are immediately available to you will be limited to what's on the boot disk. The configuration of the boot disk is even more important to users with only a single floppy drive, since running any program that isn't on the boot disk can involve a lot of inconvenient disk-swapping.

Before you make any changes to the standard Workbench disk, it is vital that you make a backup of the original disk, just the way it came out of the package. You can always go back to this disk if your boot disk fails or if you need to retrieve files that you may have deleted or changed. If you make any changes to the original disk before backing it up (including changing preferences), you may live to regret it!

There are three main areas you might change to personalize a Workbench disk:

- 1) Preferences (as set by the *Preferences* programs)
- 2) Modification of the Startup-Sequence
- 3) The addition of favorite programs

The first two of these changes can usually be done directly on your boot copy of the Workbench disk (not the original!) without requiring the removal of files. Adding programs, however, will involve a bit of surgery, since there is precious little available space on a standard Workbench disk. To know what

you can cut from the disk, it will help you to find out just what everything is for. (Even if you're not interested in any Workbench disk trimming, it's nice to know just what you're feeding your Amiga at boot time every day!)

The C Directory

A large portion of the Workbench disk is taken up by the commands in the C directory. Here's where all of the standard CLI commands like *Dir*, *List*, *Copy*, etc. are stored. Commanding "Dir c:" from the CLI will show you all of the commands.

It's not necessarily safe to delete commands that you don't use yourself, because the Workbench's Startup-Sequence may use them. The standard Startup-Sequence on a Workbench 1.3 disk uses the following commands:

Addbuffers	LoadWB
Assign	MakeDir
BindDrivers	Mount
Break	Path
CD	Resident

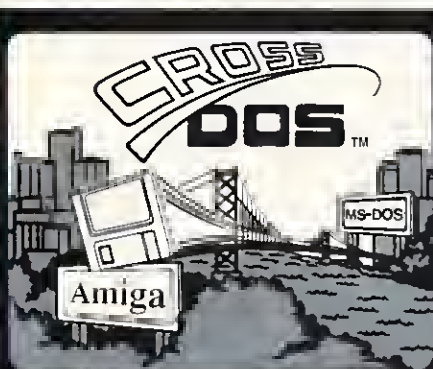
Echo	Run
EndCLI	SetClock
Execute	SetPatch
Failall	Wait
FF	

The Startup-Sequence in Workbench Release 2.0 also uses the commands *CPU*, *If*, *EndIf*, and *Copy*.

Other than commonly used commands like *Dir*, *List*, *Copy*, and *Delete*, anything else is fair game for deletion. Be warned, however, that some installation programs are implemented as AmigaDOS scripts that may assume the existence of commands like *IconX*, *If*, *EndIf* and others. To be completely safe and ensure compatibility with any AmigaDOS scripts you might encounter, it's best not to remove anything from the C directory unless you replace it with an equivalent program.

The Prefs Directory

In Workbench 1.3 and earlier, a single program was used to change system preferences



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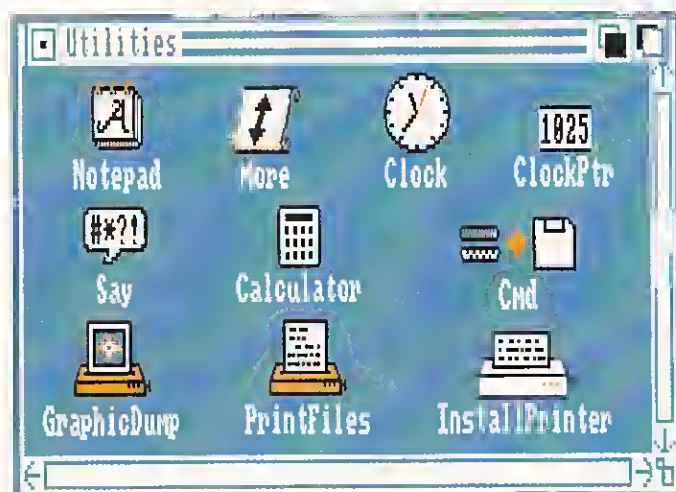
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Programs in the Workbench's Utilities drawer: prime candidates for removal from your boot disk



like Workbench colors, the printer driver, the mouse pointer, etc. Even though there are separate Preferences icons in the Prefs drawer of Workbench 1.3, they all run the same program. The program will let you change different preferences depending on which icon was used to run it; you can also run the program directly and then choose which preferences you want to change. Besides the *Preferences* program and the various icons, this directory also contains a program (actually, a DOS script) called *CopyPrefs* that will copy the current system configuration file to the disk in DF0: to let you transfer your preferences to a new boot disk.

In Workbench 2.0, there are separate programs to change different Preferences. There are programs called *Printer*, *Font*, *Palette*, and others, each with a specific task. There is also a directory called "env-archive" that contains separate files to record the various preferences settings.

The *Preferences* programs are only required when you actually need to use them to change system preferences. As this is usually done only once, or at least rarely, you may want to delete them from your boot disk to make room for more frequently used programs. When you need to set preferences, you can run the program from a copy of the original Workbench disk. With Workbench 2.0, you can delete all of the preferences programs, but make sure you don't delete the "env-archive" directory or its contents.

The System Directory

The system directory is similar to the C directory in that it contains generally useful system programs. The main difference is that programs in the System directory have icons,

so they can be run from Workbench. This is where you'll find the well-known *DiskCopy* and *Format* commands, along with the more obscure *MergeMem*, *NoFastMem*, *FastMemFirst*, and others.

Even if you don't use these commands directly, some are used in the Startup-Sequence, and others, like *Format* and *DiskCopy* are used by Workbench. The others are quite small and not worth removing for making space on the disk. In general, this directory is not a good candidate for trimming unless you're really desperate, in which case you can go after *NoFastMem*, *FixFonts*, and in 1.3 only, *MergeMem* and *InitPrinter*.

The S Directory

S is the place where DOS scripts are stored. The most fundamental of these is the Startup-Sequence, which is executed when the system is booted. Workbench 1.3 splits the Startup-Sequence into two, using the file "Startup1" as well. Any other files in this directory are scripts for your convenience only, and you can delete whatever you're not using. Some programs store their own configuration files in this directory, so you may find more files accumulating here as you use more programs.

The L Directory

I don't know why this directory is called, "L," but it contains handlers (special programs) used by various software "devices". When you output to the virtual devices called AUX:, SPEAK:, or PIPE:, the handler is loaded from this directory to do the work. Workbench 1.3 also stores some more fundamental programs in this directory, like *DiskValidator* and *FastFileSystem* for floppy and

hard drive disk management, *Newcon-Handler* and *Shell-Seg* for the AmigaDOS Shell program, and *Ram-Handler* for the RAM disk.

Since the files in this directory are used by the system when an application program refers to a certain device, it is not advisable to remove any of them. Even if you never use the "pipe" or "speak" devices yourself, some program that you run may assume their existence and try to use them. The files aren't very large, and they're worth keeping.

The Devs Directory

The files in Devs are similar to those stored in "L"; they are special programs loaded by the system when required. For example, the first time (since power-up) you print something, the "printer.device" is loaded into memory to translate standard printer codes to the specific codes used by the printer. The first time speech synthesis is called upon, the "narrator.device" is loaded. Similar programs are used by the clipboard, RAM drive, and SER: and PAR: devices (for serial and parallel port I/O).

Besides these special "device" programs, the Devs directory contains printer drivers, which you can select from printer preferences to suit your particular printer. The standard Workbench disk contains only one driver called "Generic." Once you locate the driver that you need (found on the "Extras" disk), you must copy it to the "devs/printers" directory and select it from the printer preferences program. There is also a "keymaps" directory that holds the keymap set by the *SetMap* command (different keymaps are used in different countries). There are two other important files in this directory: "MountList," which is used to define devices added by the *Mount* command, and "System-Configuration," which holds the current system preferences.

You shouldn't remove any of the files in the Devs directory. To save space on the disk, make sure that the "printers" and "keymaps" directories contain only the files being used, and that the "clipboards" directory is empty.

Fonts

The Fonts directory contains standard Amiga fonts, and others can be found on the Extras disk. The fonts files in this directory will be available to you whenever you use a program - like a paint program or wordprocessor - that lets you select a font. It is up to you which fonts you include in this directory.

If you need extra space on the disk and never use any of the "Sapphire" or "Emerald" fonts, for example, you can remove them. If you purchase, download, or create some other fonts that you particularly like, you can copy them into the fonts directory instead. After deleting or adding fonts, you should run the *FixFonts* program to adjust the font description files. The Fonts directory on the Workbench 2.0 disk is empty; the system fonts are all on the Extras disk.

The only possible drawback to deleting standard font files is that you may run a program that loads a project containing fonts that don't exist. In most cases, a warning will alert you of the missing fonts, or a default font will be used.

Libs

The Libs directory contains special "shared library" programs that are loaded into memory when requested by a program. Once in memory, these libraries can be shared by any number of programs that need them. Like fonts, devices and other similar data, libraries are removed from memory when no program

is using them and when memory is required.

Although the three "math" libraries are not used by all programs, it is a good idea to keep them on your Workbench disk just in case. If a program tries to open a library that isn't available, it will not be able to run. The "translator.library" file is only used by programs that need to do text-to-phoneme conversion for speech synthesis. If this file is missing, programs that use speech synthesis will not work properly and may fail completely.

Unless you know what libraries are required by all the programs you run, it's best to leave the existing files in the Libs directory undisturbed. Some programs will require that you add new files to this directory, so you'll need to make room for them by deleting other files on your boot disk.

Expansion

The Expansion directory holds the software drivers required for hardware like add-on hard drives. This directory is empty on a standard Workbench disk, but new hardware may come with its own driver, which you

drag into the Expansion drawer from Workbench. Once in the Expansion drawer of the boot disk, the device will be automatically recognized by the system when you reboot.

Utilities

At last we come to the richest hunting grounds of all: the Utilities directory. The programs here are strictly for your own use, and unless you use them frequently, you might as well replace them with programs you do use. All the programs in this directory combined - which include *Notepad*, *Clock* and *Calculator* - occupy over 120k on the disk.

This ends our brief tour of the Workbench disk. Despite the number of system files, almost every one of them could be the subject of an entire article in itself. An operating system as complex as the Amiga's not only makes the machine more powerful, it provides more secrets to learn and mysteries to unravel. Keep your eye on *.info Technical Support* as we explore more of these mysteries in the future. ☆

...Continued from page 20

hands on one); Ditek, showing their powerful CAD program *DynaCADD*; and Gold Disk, with version 2.0 of *Professional Page*.

A little down the aisle and to the left from Commodore, NewTek's booth drew crowds with live demos of the *Video Toaster*. Among the converts at the show was PC columnist John Dvorak, who reportedly called the *Toaster* "a reason to finally dust off and use my Amiga 2000."

Amigas were few and far between at Comdex, but we did find one at the Supra booth. They have several new products in the wings that weren't being shown yet at Comdex, but we'll fill you in on them as news comes to us. The MicroSpeed booth featured an *AmTrak* trackball connected to an Amiga 500. They also had a "Whack-A-Mouse" game hooked up and sponsored a competition among the editorial types covering the show. Benn represented *.info* and did a good job considering he had no chance to warm up beforehand. He racked up a second-place score and received a nifty walnut gavel with an engraved brass nameplate for his efforts. All of

the other editors and publishers in the Amiga community wimped out of the contest, so we feel we must declare Benn the "Whack-A-Mouse Master of the Amiga Universe" by default.

Other items of interest: Canon reps whispered that "someone" was developing a scanner/Postscript color printer hardware and software package to link an Amiga to the Canon color photocopier. Though this will make an expensive system, it will certainly also be a powerful one. In Canon's booth there were two new bubble-jet printers, the *BJ-10e* portable and *BJ-330* desktop, featuring greater-than-laserjet 360x360 dpi resolution. New lower-priced (<\$7,000) color Postscript laser printers were shown by several companies, including NEC. Our personal "Pick of the Show": Roland displayed an impressive new inexpensive (\$695) desktop plotter that will be of interest to Amiga owners. This serial/parallel 8-pen easy plotter also cuts vinyl or flock material to make T-shirt transfers, signs, decals, and more. Look for a full review of this little wonder in an upcoming issue of *.info*.

The Amiga made a good showing at a multimedia conference hosted by Commodore's David Archambault. Kalish Ambwani of Gold Disk demoed *Showmaker* and NewTek's Tim Jenison showed the *Video Toaster*; both demos drew lots of 'oohs and ahhs' and went off without a hitch... though an IBM-based DV-I system crashed repeatedly! Best of all, the tone of the meeting was subdued, with the answer always being, "We can do this, this, and this fantastic thing... and by the way, you need an Amiga to do it." It was wonderful! Just as wonderful was the intimation that Commodore may be negotiating for some impressive new chipset-based graphics compression technology which could dramatically increase the amount of graphics data an Amiga can store and display in real-time.

Unfortunately, the Amiga didn't take Comdex by storm. The mindless MS/DOS Clonemongers will never wake up to anything beyond the borders of DOS-dom. But for those who had an ear, the Amiga's message at Comdex was loud and clear. ☆

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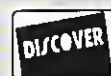
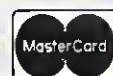
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A. Which type of Amiga do you own?

- 1 ☐ Amiga 500 4 ☐ Amiga 2500
2 ☐ Amiga 1000 5 ☐ Amiga 3000
3 ☐ Amiga 2000 6 ☐ None

B. Which of the following software products are you likely to purchase within the next year?

- 7 ☐ Desktop Publishing
8 ☐ Wordprocessing
9 ☐ Video
10 ☐ Graphics/Animation
11 ☐ Sound/Music
12 ☐ Productivity
13 ☐ UNIX
14 ☐ Entertainment
15 ☐ Educational

C. Which of the following hardware products are you likely to purchase within the next year?

- 16 ☐ Mass Storage 19 ☐ Video Hardware
17 ☐ Accelerators 20 ☐ Monitors
18 ☐ Printers 21 ☐ Other

D. What applications are your primary interests?

- 22 ☐ Desktop Publishing
23 ☐ Wordprocessing
24 ☐ Video
25 ☐ Graphics/Animation
26 ☐ Sound/Music
27 ☐ Productivity
28 ☐ On-line Services
29 ☐ UNIX
30 ☐ Entertainment
31 ☐ Educational

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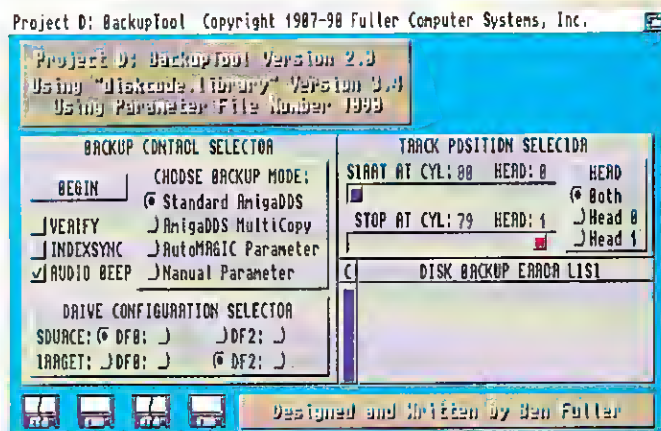
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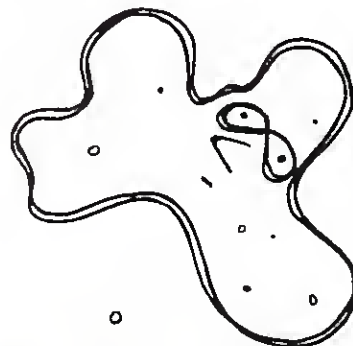
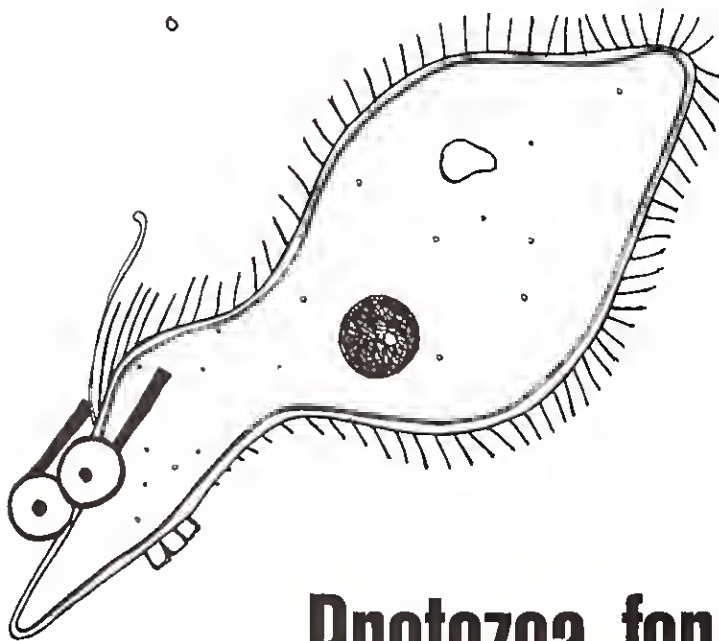


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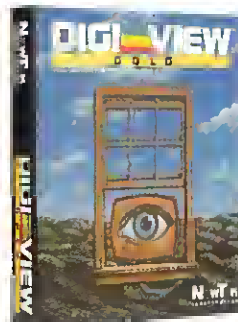
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